

# **THE AMERICAN JOURNAL *of* PSYCHIATRY**

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MODIFICATIONS IN EGO STRUCTURE AND PERSONALITY REACTIONS UNDER THE INFLUENCE OF THE EFFECTS OF DRUGS. <i>Eric Lindemann and Lincoln D. Clarke</i> .....	561
DRUGS THAT PRODUCE DEVIATIONS IN MOOD, INCLUDING ANXIETY, PRESUMABLY WITHOUT IMPAIRING CAPACITIES FOR ORIENTATION OR AT LEAST SECONDARILY TO CHANGES IN MOOD. <i>R. A. Cleghorn</i> .....	568
EXPERIMENTAL SCHIZOPHRENIA-LIKE SYMPTOMS. <i>Max Rinkel, H. Jackson DeShon, Robert W. Hyde, and Harry C. Solomon</i> .....	572
EFFECTS OF MESCALINE AND LYSERGIC ACID (d-LSD-25). <i>Paul H. Hoch, James P. Cattell, and Harry H. Pennes</i> .....	579
EFFECT OF DRUGS. THEORETICAL CONSIDERATIONS FROM A PSYCHOLOGICAL VIEWPOINT. <i>Paul H. Hoch, James P. Cattell, and Harry H. Pennes</i> .....	585
MECHANISMS OF ACTION OF DRUGS THAT MODIFY PERSONALITY FUNCTION. <i>Abraham Wikler</i> .....	590
RECORDING THE FINDINGS OF THE PSYCHOLOGICAL EXAMINATION ("MENTAL STATUS"). <i>Karl A. Menninger</i> .....	600
NARCOSYNTHESIS IMMEDIATELY FOLLOWING INSULIN SHOCK. FIVE-YEAR FOLLOW UP AND SUPPLEMENTARY REPORT. <i>Sol Levy</i> .....	610
PSYCHIATRIC STUDY OF COAL MINERS IN EASTERN KENTUCKY AREA. <i>Carl Wiesel and Malcolm Arny</i> .....	617
HOSPITAL EXAMINATION OF ADULT OFFENDERS. <i>K. G. Gray</i> .....	625
CORRESPONDENCE:	
Group Therapy with Negro Mothers. <i>Stella Chess</i> , 628. Reply to the Foregoing. <i>Margaret C.-L. Güldea</i> , 628.	
COMMENT:	
The Spectral Epidemic of Sex Offenses, 629. Progress of Hospital Inspection, 630.	
NEWS AND NOTES:	
Southern Psychiatric Association Annual Meeting, 632. National Association for Mental Health, 632. Dr. Davidson Takes New Post with VA, 632. Neuropsychiatric Meeting, North Little Rock, 633. Grant to University of Minnesota for Research, 633. Postgraduate Course at University of Utah, 633. Association for Research in Nervous and Mental Diseases, 633. Massachusetts Psychiatric Society, 633. Mid-Continent Psychiatric Association, 633.	
BOOK REVIEWS:	
The Structure of Human Abilities. <i>Philip E. Vernon</i> .....	634
Psychiatric Aspects of Juvenile Delinquency. <i>Lucien Bovet</i> .....	634
El Psicodiagnóstico Miokinético: Su Teoría y Práctica. <i>Cesar G. Coronel</i> .....	635
El Psicodiagnóstico Miokinético de Mira. <i>José Angel Bustamante</i> .....	635
Our Rejected Children. <i>Albert Deutsch</i> .....	635
Alcohol and Social Responsibility—A New Educational Approach. <i>Raymond G. McCarthy and Edgar M. Douglass</i> .....	636
The Psychoanalysis of Elation. <i>Bertram D. Lewin</i> .....	636
De l'Instinct à l'Esprit. <i>Charles Baudoin</i> .....	637
Counseling the Handicapped in the Rehabilitation Program. <i>Kenneth W. Hamilton</i> ....	637
La Psychologie des Tuberculeux. <i>Maurice Porot</i> .....	638
Pioneer Doctor. <i>Lewis J. Moorman</i> .....	639
The Neuroses. <i>Walter C. Alvarez</i> .....	639
IN MEMORIAM:	
Vernon C. Branham, M.D. <i>Winfred Overholser</i> .....	640

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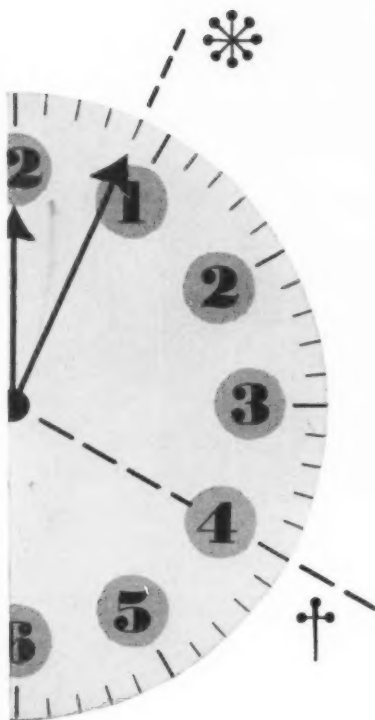
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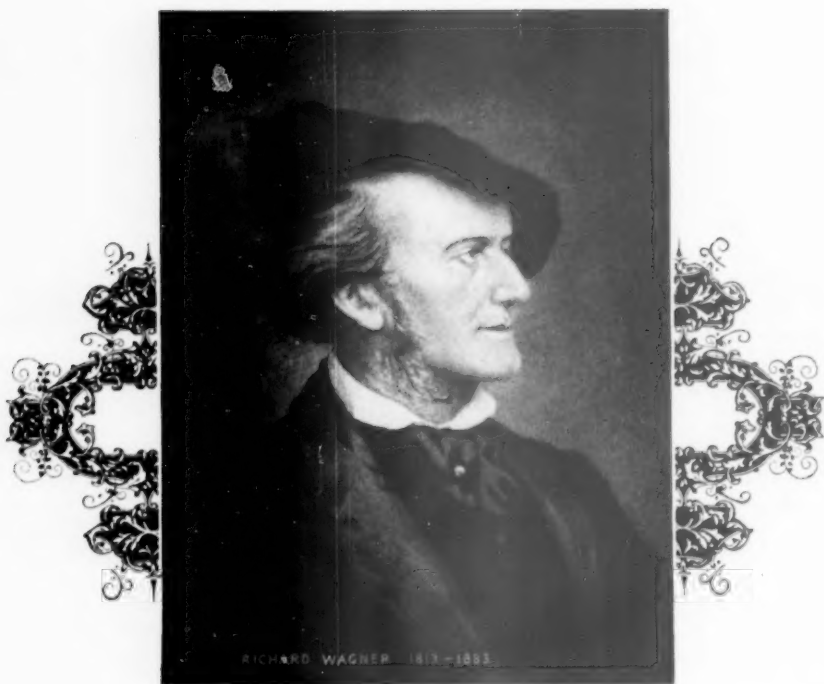
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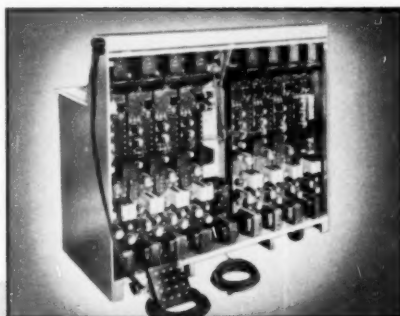
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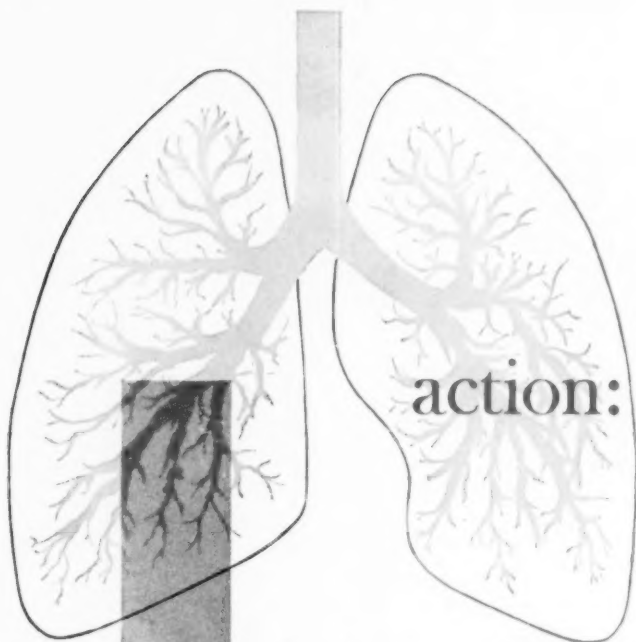
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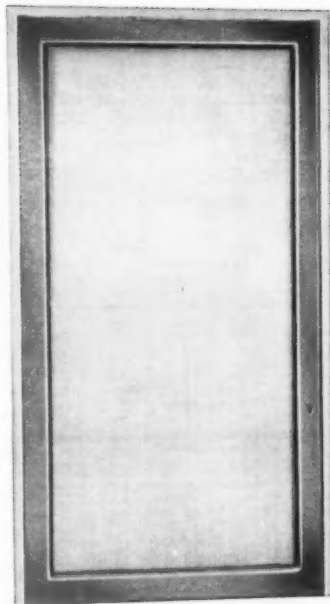
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XII

MODIFICATIONS IN EGO STRUCTURE AND PERSONALITY REACTIONS  
UNDER THE INFLUENCE OF THE EFFECTS OF DRUGS<sup>1</sup>ERIC LINDEMANN, M.D., PH.D.,<sup>2</sup> AND LINCOLN D. CLARKE, M.D.<sup>3</sup>

Boston, Mass.

## PART I

Man has long known substances capable of modifying his ego estimation, affective relationship to reality, or capacity for reverie. However, despite long familiarity with these drugs, there is paucity of sophisticated literary descriptions of their psychological effects prior to the evolution in the late 18th century England of that particular complex of assumptions and inclinations that has been called romanticism. This sequence is by no means fortuitous. The neoclassic premise that the objective of creative art was a national imitation of the universal and ideal in nature was at this time displaced by the Romantic confidence in the validity of individual, introspective experience. The development of British associational psychology, originally formulated in Locke's concept of the "association of ideas" (1), with its interest in immediate sensate data and the intrapsychic mechanisms, such as the faculty of imagination, involved in the elaboration of sensory experience, was a corollary of romanticism.

Among the descriptive accounts of drug effects, De Quincy's *Confessions of an English Opium Eater* (2), Sir Humphrey Davy's self-experimentation with nitrous oxide (3), and in America Benjamin Blood's *Anaesthetic Revelation* (4) deserve particular note. Considerably later, though in the same romantic tradition, are works such as Baudelaire's *Les Paradis Artificiels* (5).

The interest of modern psychology in pharmacodynamics might be dated from the

work of Kraepelin, who used a variety of stimulating and intoxicating drugs in attempts at the isolation and differential study of psychopathological phenomena. As will be subsequently mentioned, his concept of "psychosis in miniature," as interpreted in terms of recent developments, may assume considerably more than historical importance.

Specific therapeutic application of drugs in psychiatry awaited the development of narcoanalysis during the past 20 years. Sodium amytal and pentothal, either alone or in combination with analeptics such as benzedrine or coramine, have been primarily used. Ether has also been found capable of inducing abreactive states. The capacity of barbiturates to modify catatonic states and of benzedrine to alleviate depressive affect have been demonstrated. Pharmacodynamic studies of schizophrenia and affective psychosis have been made with mescaline, marihuana, and synthetic homologues of the latter (pyrahexyl, synhexyl). Lysergic acid and pervitin are more recent additions to this field.

The constructive development of narcoanalytic therapy and the pharmacodynamic study of normal and abnormal mental states has an ominous counterpart in the "biodynamic" method developed behind the Iron Curtain for destroying personality structure. Meerloo (6) has introduced the word "menticide" for this process. The method appears to be of eclectic character, embodying in its principles western contributions to ego psychology, Pavlovian conditioning, and in its technique the ego-disintegrating effect of profound fatigue, hunger, fear, and repeated administration of drugs modifying the function of the central nervous system. Actedon (phenylisopropylaminohydrophosphoricum) and synthetic mescaline are cited as having possibly been used in the case of Cardinal Mindszenty (7). "Menticide," as described in Orwell's remarkable intuitive satire, *Nineteen Eighty-Four* (10), bears remarkable

<sup>1</sup> Read at the 107th annual meeting of The American Psychiatric Association, Cincinnati, Ohio, May 7-11, 1951.

This and the following 5 papers were part of a theoretical symposium on ego states as modified by drugs including enzymes and hormones.

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similarity to the few first-hand accounts available of the "biodynamic" method.

Recent advances in endocrinology have emphasized yet another aspect of the pharmacodynamics of mental function. During the past year, it has become increasingly apparent that untoward mental symptoms are a not uncommon complication of cortisone and ACTH therapy. In retrospect, this coincidence might have been anticipated in view of the long-recognized occurrence of psychosis as a complication of Cushing's disease. The general character and implications of these disturbances will be subsequently described. There is an urgent need for greater insight into the factors that determine whether or not there will be a psychotic reaction in sequence to the administration of these hormones for physical disease.

## PART II

The subject of this paper is the relationship of behavior after drug administration to the personality of the patient and to his particular mental condition at the time when it was administered. In the early 1930's, Dr. Malamud and one of the present authors were keenly interested in this problem. At that time, various types of drug experimentation were reported(9). We have since followed with keen interest the resurgence of concern with this topic. Today's comments might be introduced with the formulation at which we arrived in 1932 on the basis of comparing the reaction of schizophrenic and psychoneurotic patients to the administration of suitable doses of sodium amytal, cocaine, hashish, and mescaline. The statement was as follows(9):

Each drug undoubtedly has certain characteristics but these are quite closely related to the conditions of the patients which are present when these specific effects are produced. The changes produced by a given drug will not only be elaborated on in the light of the pre-existing psychic state but totally new types of reaction may result from such an inter-relationship. Another equally important factor in the molding of the effects of the drugs is furnished by the individual characteristics and background of the person himself. Different individuals, even with the same mental condition, may react differently to any one of the drugs. These differences do not only show themselves in the superficial structure of the changes produced but reach down deeper into the personality and determine the levels which these effects may reach.

These observations may seem crude and lacking in clarity at the present time, when our capacity for observation and our conceptual framework have the benefit of much new work in the psychology of personality and ego development. Personality theory has been tremendously advanced by the descriptive conceptualizations of Gordon Allport(10), the more dynamically oriented approach of Murray(11), Mowrer(12), Kluckhohn(11), and Lewin(13), and especially by developments in learning theory as reflected in the studies of Dollard(14) and Robert Sears(15). These contributions have led to formulations having in common an emphasis on functional organization rather than on the enumeration of traits and vectors. From this point of view, personality may be considered as a goal-directed organized unit in which arrangements are made for the satisfaction of basic drives or tension states, as well as secondary drives incident to the learning process through utilization of the proper cues, for the adjustment of needs to opportunities, and for determining the choice of tools for drive satisfaction in the light of the cultural prescriptions and taboos to which the functioning personality is exposed. Individuals may be distinguished by the variety of methods for problem solution at their disposal and by the manner in which they habitually solve basic problems of adjustment.

This development in personality theory has been paralleled by a considerable growth in ego psychology, in both psychoanalytic studies and in the broader field of experimental psychology. It has become customary to think of the ego as that part of the functioning personality which is the integrative center of behavior, so far as it is well adjusted and mature. The more mature person is stronger in his ego. Its function is to adjust behavior so as to represent a suitable compromise between instinctual demands and the world of reality. The perception of the constellation of circumstances in the present has to be related to memories of circumstances in the past and to anticipation of future circumstances in such a way that these perceptual data can be related to the pressure of drives and dissatisfactions demanding attention. At any moment, efforts



at integration are taking place that make it possible to devise a plan of action promising a maximum of drive satisfaction and a minimum of danger and punishment. This process may be more briefly expressed in the following formula: the integrative functions of the ego are designed to provide the proper correlation of the perceptive and the executive functions of the ego.

A prerequisite for the study of drug effects is acquaintance with the basic factors that alter the main functions of the ego. Numerous studies in the last decade have shown how strongly memories, perceptions, and anticipations are influenced by motivational factors. Allport (16) and Postman (17) have studied in some detail the profound distortions of leveling and sharpening that occur in pictures as they are successively described by different reporters. It is also possible to study experimentally the effect of anxiety, aggressive drives, and libidinal wishes on perceptual material. Tachistoscopic investigations by Jerome Bruner and his associates (18, 19) have shown strikingly the differential effects of motivational attitudes upon the perception of written material. Richard Solomon (20) has demonstrated how children of prepuberty age show marked distortions of the apparent size of token coins dependent upon the expectation of what the coin will buy. Rappaport (21) recently has reviewed the motivational factors in memory. In brief, these investigations deal with alterations in the raw material that is at the disposal of the perceptive ego.

The integrative function of the ego and the particular mode of defense utilized for a tolerable compromise in the choice of action pattern has been studied in the structure of dreams by Thomas French (22). Much material illustrating the construction of fantasies in solutions of adjustment problems has come from the TAT studies of Henry Murray (23). Kurt Lewin (24) and Tamara Dembo (25) have shown how situations of heightened emotional change, such as anger and frustration, activate special modes of defense to cope with these powerful emotions. Departure from the plane of reality to find solutions in unreality as well as regression from integrated behavior to primitive forms of aggressive solutions give am-

ple proof that fluctuations in the strength of drive may be sufficient to alter the integrative functions of the ego.

Furthermore, the level of integration may be strongly influenced by the level of awareness or consciousness. James Miller (26) has shown in some detail how the level of awareness, as altered by such factors as fatigue or mechanical injury to the brain, may profoundly alter what is admitted into the integrative process to become determinate of action. It is in this connection that alterations in the level of awareness and correlated changes in integration seen when going to sleep and upon awakening, the so-called hypnagogic phenomena, obtain special significance.

In the light of all these factors, our original formulation, expressed in terms of personality and situation, may be replaced by a new formulation referring to the goals and motivation of a given person, to his methods of defense to guarantee a tolerable balance of emotional pressures, and to the particular form in which he integrates perceptions, memories, and anticipations for the purpose of organized action. We also need to consider the arsenal of social skills possessed by the person as tools for alternate solution of problem situations and the degree of pressure sufficient to cause him to abandon his customary level of integration in search of a regressive solution.

This formulation of the person whom we attack by the administration of a drug is equally useful for the study of symptoms that arise as part of psychiatric illness, and both present equal difficulties for investigation. The psychiatric reaction types as described by Adolf Meyer and reviewed in some detail by Malamud and one of the authors (27) and by John Whitehorn in his analysis of the "meaning" of symptoms make it possible to keep in one frame of reference the drug-induced variations in behavior and psychopathology of spontaneous origin.

### PART III

In the light of our discussion, it seems permissible to say that all drugs that are of interest to the psychiatrist produce changes in the integrative functions of the ego. This may be brought about by at least 3 avenues.

First, there may be a reduction or modification in perceptive cues. The former is best exemplified by the capacity of morphine selectively to reduce response to physical pain or emotionally unpleasant stimuli, perhaps by precluding the elaboration of their painful implications at an integrative level. The latter may be illustrated by the marked distortion of the perceptual order of the outer world and body image seen after administration of mescaline.

The ego may respond to such perceptual interference by positive or negative integrative efforts. The effect of morphine is usually experienced as pleasure and may be used by the ego for future planning as a permanent asset in pleasure-getting devices. The distortions following mescaline administration may become the occasion for culturally sanctioned elaborations of religious fantasies, as in the use of peyotl in Mexico. On the contrary, however, they may lead to a sense of social isolation because of experiences incompatible with those assumed to be going on in others. The ego response to this perceptive change may be one of great apprehension or be marked by the features of depersonalization. In this intriguing syndrome, executive functions are abandoned, and the subject surrenders to the role of being a passive spectator, becoming affectively neutral and denying all involvement in future planning or action. The fear of loss of capacity to integrate new experiences into the totality of manageable intrapsychic events may be followed also by great efforts at reformulating in a logically consistent and emotionally acceptable manner the drug-distorted perceptual cues. The belief experienced at times under mescaline that new religious insights have been attained or new philosophies formulated seems to us to manifest excessive efforts at integrating this elusive perceptive material. It goes without question that the needs of the individual in terms of drive satisfaction will tend to lead to emphasis on certain perceptual changes in preference to others.

Another form of selective change in perceptions seems to us that produced by benzedrine and related compounds. The peculiar reduction in the urgency of basic drives and appetites, as well as of secondary drives such

as anxiety and depressive self-punitiveness, all indicate a change in the perceptive cues concerning the urgency of drives demanding satisfaction. The ego reacts to this with a capacity for activities promising more remote rewards and is able to make its pleasure-displeasure adjustment at a lower level of immediate satisfaction. The use of benzedrine for weight control is a good illustration.

These few examples suffice to indicate that even a relatively restricted impact of drug effect on one area of the ego organization may be considered as responsible for alterations encompassing changes throughout the total structure of the ego.

A second area of drug effects may be found in those directly attacking the level of integration of the ego by influencing the preformed mechanisms that lead from waking to sleeping and vice versa. The barbiturates and scopolamine both lead to sleepiness and finally to profound sleep. However, the manner in which the subject passes from full awakeness to profound sleep is strikingly different. With sodium amytal there is a gradual reduction in the critical appraisal of perceptual cues and reduction in the apprehensive caution with which plans of action are usually integrated to such perceptions. The critical judgment about another person's behavior is reduced; past memories, which are usually kept from access to consciousness, are now admitted, and acts of verbal communications that ordinarily are considered inappropriate may take place in this state of reduced vigilance. The ego may accept this change with the same degree of satisfaction with which sleep is usually greeted if the circumstances are appropriate. On the other hand, it is well known to surgeons that under circumstances of heightened anxiety and apparent necessity for extreme vigilance, as in the prospect of a major surgical operation, the ego may react with extreme excitement, overactivity, and an aggressive solution of the adjustment problem.

The withdrawal from alert preoccupation with outer experiences in the direction of heightened preoccupation with imagery and fantasy, which is a part, in many people, of the going to sleep process, may be markedly enhanced under the influence of scopolamine

and again may lead to states of satisfaction or to states of apprehension.

This shift to preoccupation with imagery and relative neglect of external stimuli is, of course, one of the striking effects of substances such as mescaline. In psychoanalytic language, one could say that they facilitate narcissistic withdrawal. Instead of having a reduction in awareness, as occurs in going to sleep, there seems to be a heightened alertness and vivid concern with experiences, elaborated from past events. The cues available from present perceptions seem to be woven into these elaborations much like the secondary elaboration of dream material. This suggests that, though instinctual demands are pressing, the defensive devices of the ego, like those operating during dreaming, are utilized in abundance. Much of this secondary elaboration renders the perceptive world quite unsuitable for planned action and profoundly impairs the executive functions of the ego.

Third, many of the workers who have studied mescaline intoxication have been puzzled at a peculiar state of activity witnessed in such projects. The attitude is one of an interested spectator whose planned action is waived for the duration of the show. Efforts of the investigator to involve the subject in organized activities, such as participating in experiments, are answered with reluctance or frank refusal. However, a verbal account of the experiences is given more freely. We have observed that under the influence of both hashish and cocaine the executive functions of the ego operate quite differently. Here also we find dreamlike elaboration of past and present experience, but with it goes a considerable increase in the need to act. Several of our subjects under the influence of cannabis indica clung to the experimenter, wishing to be restrained from a sexual assault on a girl or from acting upon silly aggressive impulses.

A striking demonstration of shift in executive functions was observed recently by one of us when benzedrine was experimentally administered to an individual under morphine narcosis. In the latter state, the subject lay in a markedly euphoric lassitude, preoccupied with erotic fantasies. Shortly after the administration of benzedrine he

was observed to become restless and apparently bewildered. He asked the experimenter not to allow him to leave the hospital until fully recovered from the drug intoxication because he was afraid of what he might do. The effect of the benzedrine on the executive functions of the ego appeared to introduce as an acute threat the imminence of his acting out in fantasied terms. This perplexity and apprehension were followed by a depersonalization state with coincident resolution of these distressing feelings.

#### PART IV

We have been concerned so far with ego functions and their relative involvement under the influence of a variety of drugs. The title of our paper also suggests concern with the differential effects of such substances as engendered by individual differences in ego structure and by variations in the integrative problems that the ego is facing at the time of drug administration. This problem has become particularly urgent since the recent discovery that drugs, *i.e.*, cortisone and ACTH, that produce alleviation of physical symptoms may be followed by a profound disorder of behavior and experience. Some observers have argued that the alteration in the integrative task for the ego that was presented by the sudden disappearance of massive physical symptoms to which a certain degree of adaption had been reached might be the most significant factor in bringing about a disintegration of ego functions quite apart from a more direct effect of the drug on the central nervous system. However, with accumulated experience, greater causative significance has been ascribed to the latter effect.

During the past year a series of 7 cases of mental disturbance of psychotic proportions has occurred at the Massachusetts General Hospital as a complication of ACTH or cortisone therapy, 4 with the former and 3 with the latter drug. The durations of these psychoses have varied from 2 weeks to 5 months. In none of these cases was there a prior history of frank psychiatric illness.

These patients exhibited a remarkable and complex series of psychic phenomena. In particular, the following abnormalities can be enumerated as having been observed at

one time or another in the group as an aggregate. Perceptual disorders were frequent and included both illusory and hallucinatory experiences. Disturbances of speech, which were invariably present, varied from mutism to marked press of speech and included as well qualitative abnormalities such as flight of ideas, tangentiality, stereotype, and paralogia. Delusions of depressive, paranoid, and grandiose types occurred.

Affective disturbances, also invariably present, varied from depression to hypomania, from apathy to panic, and included ill-defined states that might be described as bewilderment or turmoil. Depersonalization feelings and disturbances in the perception of the body image were frequently evidenced. Intellectual-affective dissociation varied from mere flatness to gross inappropriateness of affect.

Motor disorders varied from marked overactivity to complete immobility and included as well instances of profoundly regressive and/or symbolic-ritualistic behavior. Among miscellaneous symptoms observed, anorexia, insomnia, incontinence, distractibility, and emotional lability were of frequent occurrence.

As has been previously noted, a severe degree of disturbance in capacity for rational, sequential thought was frequently observed. Although at times this could be ascribed to regressive, psychotic mental content, on other occasions it appeared to represent a primary disorder of cognition, *i.e.*, confusion in the usual toxic sense. Similarly, while in some instances disorientation could be related to delusional involvements, in others it resulted from almost complete replacement of the normal sensorium with incessant, variable illusory and hallucinatory experience. At other times marked withdrawal or mutism made clinical evaluation impossible.

The classification of these disorders presents particular difficulties. As has been evidenced above, they exhibited in their courses most of the phenomena found in both schizophrenia and affective psychosis. In general, closest similarity is found in comparison with some of the acute schizo-affective disorders, *e. g.*, the panic and turmoil states, or certain combat and puerperal psychoses.

If the time dimension were compressed

from days or weeks to hours, the kaleidoscopic admixture of psychotic phenomena seen in the hormonally induced mental disturbances would not be dissimilar to that occurring in the instance of severe mescaline psychosis, especially as described by Stockings and Hoch. Both involve a profound degree of disturbance in ego function. The particular distortion of vision and other sensory effects of mescaline intoxication must, of course, be expected in this comparison.

There are scattered reports concerning the differential effect of mescaline in different types of individuals and in different states of mental illness. Our own observations (28) showed distinct differences between schizophrenic and neurotic individuals in their reaction to a whole series of drugs. MacFarland (29) showed how the same degree of oxygen deprivation may elicit a variety of behavior responses in different normal subjects. While it is usually possible to define certain features of changes in behavior and experience typical for a given drug, the prediction concerning the reaction of a given individual at a specific time is not very sure. Situational factors, both those in the patient's life and those in the immediate experimental situation, may significantly alter the prospect that a given response will occur.

No studies available so far, including our own, are in any way sufficient to make statistically reliable predications concerning the manner in which a given type of individual will respond to a drug. Even so recent a report as Paul Hoch's (30) cannot provide adequate basis for any conclusions.

It seems to us that now is the time to organize a series of studies with sufficient number of subjects, both normal and diseased, and with a systematic assessment of the external and internal environment of the ego, of the pressures to which a person is exposed, and of the alternate plans of action that are open to him in his specific life situation. ACTH and cortisone provide a challenging opportunity in this respect. Lawrence Kubie's studies of alterations in repressive force and dissociation under the influence of certain drugs is an example of such more circumscribed studies (31). Redlich's report (32) concerning the differential responses in differently motivated individuals

to the demand for confession under the influence of sodium amylal represents a step in this direction. We must attempt to restrict our concern to a measurable facet of behavior and try to control other variables as rigidly as possible.

#### PART V

A systematic study of drug effect would have to include, first, 2 well-differentiated types of personality, a control case being studied with the same care as to ego structure, previous experience, and present life situation as would be the subject; second, the experimental situation would have to be clarified in terms of the meaning of the symptom change in the patient, in terms of the expectation for future planned action that the patient connects with the experiences encountered during the experiment; third, a sufficiently large number of well-defined age levels and different cultural backgrounds should be studied; fourth, a limited number of variables should be focused upon by experimental design. Keeping in mind all these factors, we can hope to look forward to a period of greater enlightenment in psychopathology.

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## DRUGS THAT PRODUCE DEVIATIONS IN MOOD, INCLUDING ANXIETY, PRESUMABLY WITHOUT IMPAIRING CAPACITIES FOR ORIENTATION OR AT LEAST SECONDARILY TO CHANGES IN MOOD<sup>1</sup>

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Interest in agents that produce a deviation in mood has received a tremendous fillip from the observation of euphoria in patients receiving ACTH or cortisone(1). This finding, first made by internists on cases assumed to be substantially medical, is one to intrigue psychiatrists. The incidence is high, about 70% of 156 cases treated for a variety of medical conditions at the Royal Victoria Hospital(2). It can come on within 24 hours of starting treatment and is marked subjectively by a feeling of greater zest and optimism, and objectively by increased movement, alertness, and a strengthening of the voice, and appearance of greater pleasure. At first it was felt by many that the euphoria was simply a response to the alleviation of a crippling disease such as arthritis. While this may be at times true, the occurrence of euphoria in other cases with less obvious lesions suggested that it might be a metabolic result rather than a reactive psychological one. The less frequent occurrence of psychotic states with ACTH and cortisone is also of theoretical and practical importance, but whether it is an extension of the process leading to euphoria or a different one is quite unknown. It is well to recognize that full understanding of the mechanism by which these naturally occurring agents exert their effect is not possible at present on the physiological level and much less at the psychological. Before examining available evidence, however, it should be salutary to consider how simpler and better known euphoria-producing substances elicit their effects.

**Caffeine.**—The mild CNS-stimulating effect falls within the physiological range so that it is considered almost a dietary solecism to omit this morning stimulant. It is said to facilitate thought and allay fatigue. The therapeutic dose is 150 to 250 mg. and is contained in 1 cup of coffee. The toxic dose

is large, 10 grams(3). The mode of action is apparently a direct stimulation of the synapse, probably particularly on the postsynaptic segment, which according to Himwich(4) is most sensitive to some chemical agents.

**Aminophylline.**—Modern methods(5) have shown that 0.5 gram aminophylline given intravenously reduced the cerebral blood flow in 10 patients from a mean of 59.4 to 44 cc/100 g/min. of oxygen, indicating a constriction of cerebral blood vessels. It also lowered the cerebral metabolic rate from 3.9 to 3.3 cc/100 g/min. in 6 patients and raised it in 4 from 3.7 to 4.6 cc. The latter 4 manifested extreme anxiety accompanied by signs of syncope. Whether the cardiovascular symptoms caused, or were caused by, anxiety could not be determined. Possibly the increased oxygen utilization led to the expression of anxiety and somatic symptoms too.

**Amphetamine.**—Though chemically unlike aminophylline, this agent has a similar action. Both cerebral blood flow and metabolic rate are generally reduced(4) in man and monkeys. This is curious in view of the recognized stimulating effect of the drug. Amphetamine does, however, increase the oxygen consumption of the brain tissue under certain circumstances according to *in vitro* experiments of Mann and Quastel(6). It inhibits the formation of aldehydes that depress oxidative metabolism. Aldehydes may arise from naturally occurring amines, *e.g.*, tyramine, through the mediation of the enzyme amine oxidase. *In vitro* amphetamine binds the amine oxidase so that toxic aldehydes cannot be liberated. On the other hand, *in vivo* amphetamine does not increase O<sub>2</sub> consumption of normal brain tissue or of brain tissue inhibited by anesthetic. The stimulating action on normal and anesthetized brain remains unexplained unless there is a relationship to adrenergic substances in brain tissue(7). In this connection it is known that amphetamine potentiates certain pharmacologic effects of epinephrine (*e.g.*, pressor).

<sup>1</sup> Read at the 107th annual meeting of The American Psychiatric Association, Cincinnati, Ohio, May 7-11, 1951.



Gaddum's(8) theory is that it acts by preventing the oxidation of epinephrine by amine oxidase by competing with the latter for the receptor substances in effector cells. Amphetamine, while having an affinity for the oxidase, is itself resistant to destructive deamination thereby. It is of interest that caffeine has been shown recently to have a similar type of action, though only 1/15 as effective in releasing  $O_2$  uptake in brain from tyramine inhibition(9).

Another enzymatic action of amphetamine and allied derivatives has recently been discovered by Colter and Quastel(10). Choline oxidase is protected from inactivation by nitrogen mustards in virtue of the high affinity these substances have for choline oxidase, thus preventing the irreversible combination brought about by the mustard.

Such erudite studies of drug actions might be thought to supply clues to abnormal mental states, but such is not the case at present. The available experimental data, as Waelsch(11) points out, cannot yet be described in terms of the intact organisms.

**Cortisone.**—If the action of these relatively simple drugs is complicated and still unsolved, how much more involved is the understanding of agents like cortisone and ACTH. The first not only has its own physiological effects, identified already by some dozen chemical changes in the body, but it inhibits the function of the intact adrenal cortex and anterior pituitary as well(12). ACTH, on the other hand, causes a liberation of other agents than cortisone from the adrenal, probably a series of steroids(12). In the face of such a barrage of changes in individuals with intact adrenals, a somewhat simpler test object can be found in patients with Addison's disease.

The first case that I wish to cite was a patient of Dr. J. S. L. Browne at the Royal Victoria Hospital, and gave the following history: At 23 the woman survived a pregnancy with pre-eclampsia and a 3-month period of a salt-free diet and breast feeding of her child, good evidence of functioning adrenals. Six years later (1943) she became pigmented and amenorrhoeic and soon after nauseated and weak. Addison's disease was diagnosed. On NaCl and desoxycorticosterone acetate (DCA) therapy she carried on, but developed a paranoid state with hallucinations in the summer of 1949 at the age of 35. There was the usual EEG abnormality. Her mental status did not improve with

fresh DCA pellet implantation, but did apparently with lipoadrenal extract, but relapsed. Finally, she was placed on cortisone 50 mg. a day. This seemed to lead to an exacerbation of abnormal mental state. She became agitated and more deluded, and after 6 days depressed. With an increase in the level of cortisone to 100 mg. daily, improvement in her mental status occurred, and she became rational and cheerful though the EEG remained much the same, except that it became insensitive to hyperventilation.

A second case that illustrates some interesting features is also from Dr. Browne's service. This patient, married at 27 years, had the menopause between 27 and 29 years. She then lost all sexual feeling. She continued to be active, walking, reading, and doing housework. In 1941, at the age of 32, she broke both legs while skiing and that summer noticed an abnormal tan developing on her hands and a spot on her face. The latter disappeared in the winter. In 1944, when 35, she suffered a compression fracture of L. 1. In 1950, freckle spots appeared on her face and the diagnosis was made in October. She was discharged on NaCl gm. iii and methyl testosterone. At a party in December she experienced sex feeling, a unique experience in 10 years. In February, 1951, she was drowsy, weak, and nauseated. The usual laboratory tests indicated Addison's disease. She was given saline and adrenal cortical extract (ACE), and then cortisone, 125 mg. as an initial dose, and 25 mg. a day for 10 days. It had a dramatic effect. Her voice became stronger, and she appeared more alert, vigorous, and euphoric. Her extremities warmed up, and she developed a positive transference to her interne. It was found that she was hallucinating at night after her midnight dose of cortisone when her extremities warmed up and her mental processes quickened. It was like a drink on an empty stomach. She became strongly conscious of sex urges and fantasied in this field, but was also disturbed by it. A Rorschach test done after 5 days on cortisone was severely pathological. Her physical state declined when cortisone was reduced after 10 days to 12.5 mg. daily, but hallucinations persisted and the idea that she could affect others appeared; also paranoid features. After 6 days she was put back on 25 mg. cortisone daily for 6 days, as the 12.5 mg. dose was inadequate. She became more tense under this regime, felt trapped, and possibly suicidal. She spoke of sexual ruminations. After 6 days, cortisone was cut to 12.5 mg., and next day DCA 2.5 mg. was added. This was followed within 24 hours by the appearance of depression, and a subsidence of sex feeling, and less fluctuation of mood. She also was secretive about fantasies, felt very somnolent, and slept an unusual amount. Depression continued; negativism became apparent, though she responded with pleasure to a visit from her brother. Hallucinations of men in her room at night continued. The DCA was discontinued and the cortisone regulated to a dose twice weekly. She returned home and when heard from a few months later was making moderate adjustment.

To summarize these cases we see that, in the first, cortisone was followed by an increase in tension and agitation as well as in an exacerbation of psychotic features. In the second, an increase in the sense of well being, of energy, and of sex feeling appeared after cortisone was begun. This was also accompanied by hallucination and paranoid elements. Another suggestion that arises from the second case is that DCA seemed to promote somnolence and negativism.

*Steroids and Laboratory Studies of Cerebral Function.*—The contribution that laboratory studies have to make in this field though at present limited should be reviewed.

*Abnormal EEG pattern in Addison's disease* was first described by Engel and Margolin(13) in 1942 and Hoffman, Lewis and Thorn(14). It is not corrected by glucose on DCA. Experimentally a similar type of change may be produced in rats by adrenalectomy. This has been shown by Bergen (15) to shift the frequency spectrum of EEG waves to a slower rate. DCA in his experiments did not affect this but lipoadrenal extract containing large amounts of CHO active hormonal agents did, also  $\Delta^5$ -pregnenolone. In Addison's disease cortisone restores the abnormal EEG pattern (16). Since DCA is ineffectual it seems unlikely that correction of electrolyte changes are of major importance.

*Pregnenolone*, which has been claimed to facilitate psychomotor performance(17) and to possess antifatigue action(18, 19) may possibly exert its corrective EEG effect in adrenalectomized rats and its energizing effect in man by conversion to CHO active cortical hormones in the body (15).

*Brain excitability* in relation to steroid hormones has been studied by another technique elaborated by Woodbury *et al.*(20). They have measured the minimal amount of current necessary to induce clonic convulsions in rats, which they call the electroshock threshold. It is a measurement of excitability. In intact rats DCA rendered the rat less sensitive, *i.e.*, increased the electroshock seizure threshold (EST). This was counteracted by adrenal cortical extract (ACE)(20) and cortisone(21). In intact and adrenalectomized rats implanted with DCA and given water or 0.9 NaCl to drink, the thresholds

varied from lowest to highest as follows: intact controls on water; next, intact DCA rats on water; next, adrenalectomized DCA rats on water; next, same on saline. ACE and cortisone lowered the EST of DCA-saline-treated rats in 6 days with a return to pretreatment levels in 11 days. In the DCA rats on water, the effect of cortisone occurred in 3 days, and the return took place in 2 days. The authors interpret these findings as indicating that (1) intracellular Na is an important factor in determining brain excitability and (2), even more important, DCA competes with cortisone-like steroids for the sites of action of hormone. In other words, it is possible that, being so similar in structure, they "compete for the strategic loci in the cell." In the intact animal, DCA has another action, that of inhibiting pituitary adrenocorticotrophic activity. The explanation of the more rapid return of EST on the DCA water rats after cortisone withdrawal cannot be made on the basis of Na retention.

Throughout this paper no mention has been made of the observation that depression rather than euphoria may follow the use of cortisone and ACTH. The same is of course true of simpler agents like amphetamine so the direction of the mood change is obviously not specific. The described effects of the hormonal agents on the psyche supports an earlier suggestion by Cleghorn and Graham (22) that periodic catatonia may be explicable, in part at least, by variation in secretion of the adrenal cortex. Perhaps endocrinology may also participate in the unravelling of drug addiction and manic-depressive states, which have so much in common(23).

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# EXPERIMENTAL SCHIZOPHRENIA-LIKE SYMPTOMS<sup>1</sup>

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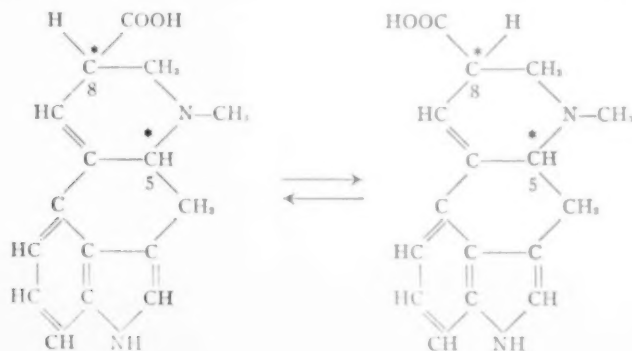
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The nature and cause of the major psychoses are still unknown. Repeated attempts have been made to reproduce experimentally psychotic symptoms in the hope to uncover their psycho-physiological relationship. In 1886, Schmiedeberg succeeded in producing cataleptic phenomena in rabbits by the use of ethyl-urethan. In 1904, Peters(11) discovered the cataleptic action of bulbocapnine; Baruk and de Jong(1, 9, 10) investigated this, as well as many related chemicals, more extensively and demonstrated the catatonic effect upon man and animals. With the discovery of new chemicals and chemical compounds, new tools are made available to the psychiatrist to investigate psychoses experimentally, and a new branch, experimental psychiatry, is emerging. The experimental psychiatrist has the advantage of knowing the one factor, in the causation of psychotic symptoms, the chemical that was administered to the patient and started the chain of reactions. The psychopathological genesis, however, of the psychotic phenomena will best be investigated by methods of the inter-

pretative analytical branch of psychiatry. Of the chemicals used experimentally at present 2 are outstanding: mescaline, an alkaloid known in its crude form as peyote for hundreds of years, though only in the past few years chemically synthesized, and d-lysergic acid diethylamide tartrate (L.S.D.), a member of the ergot group. Although these chemicals are quite different in their chemical structure, in their effect upon normal subjects and psychotic patients they show great similarities with regard to the production of psychotic symptoms. The schizogenic effect of mescaline has been reported in a number of articles, most recently in a brilliant experimental and psychopathological publication by Paul H. Hoch(8). Our paper is concerned essentially with the description of the effect of d-lysergic acid diethylamide tartrate (L.S.D.) upon male and female individuals who, subsequent to the administration of this chemical, responded with the production of psychotic-schizophrenic-like phenomena.

## Chemistry and Pharmacology

L.S.D., which stands for the German *Lysergsäure Diäthylamid*, is the abbreviation used for the diethylamid tartrate of lysergic acid which, according to A. Stoll, A. Hofmann, and F. Troxler(17), is diastereomer but not structurally isomeric with isolysergic acid as seen in the accompanying formula.



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It is water soluble and administered orally. Pharmacologically L.S.D. belongs in the group of the ergonovine substances. It has a definite effect upon the *in situ* uterus of the rabbit, and causes peculiar states of motor rigidity similar to the catatonic phenomena in the dog and cat as seen with bulbocapnine (19). In our own experiments we noted an especially strong physiological reaction in a 29-year-old very sensitive white girl who was menstruating at the time. She complained of most violent abdominal constrictions, which may have been caused by vehement uterine contractions. The peculiar psychological effect, seen as excitation in experimental animals, was first observed and described by the chemist, A. Hofmann. In his laboratory notes of April 4, 1943, he remarked that, while working with L.S.D., he noticed in himself a peculiar restlessness associated with slight dizziness. He had to interrupt his work and went home to rest. While at home, he felt as if intoxicated, a condition characterized by an extremely stimulated phantasy. After darkening his room, for the daylight bothered him very much, he had a most wonderful experience. Phantastic images of most extraordinary plasticity and intensive kaleidoscopic coloring passed before him. This state of intoxication lasted about 2 hours.

#### Literature

Following this discovery a number of authors investigated the effect of L.S.D. in self-experiments, on normal subjects, and on psychotics. W. A. Stoll (18), who first systematically investigated the psychological phenomena of L.S.D., confirmed Hofmann's experiences and reported as the most striking psychological findings disturbances in perception that led to hallucinations, acceleration of thinking, slight dimming of consciousness, but maintenance of judgment. He regarded the psychotic condition as an acute exogenous reaction type and pathologically as diencephalosis. Condreau (4) confirmed most of Stoll's findings, but reported that in his experiments the subjects' consciousness was not disturbed aside from the feeling of intoxication. He added that the subjects maintained their capacity of self-criticism, but showed increased distractibility and were less able

to concentrate. The basic theme of thought remained unchanged, and the changes in feeling tone he felt to be merely an intensification of the previous underlying mood. He added as a new observation forced laughing and one instance of athetoid movements as suggestive of involvement of the diencephalon, thus contributing to W. A. Stoll's original conception. A. M. Becker (2) essentially confirmed the observations of Stoll and Hofmann and emphasized the astounding production of psychosis-like syndromes following the administration of mere "traces" of a chemical substance. He believes the psychological manifestations are the result of two different basic disturbances: affectivity and impulsivity on the one hand, and intentionality on the other. The most striking contrasts among his observations were manic-hyperkinetic and inhibited, depersonalized manifestations. In contrast to Stoll, who termed L.S.D. a "*Phantasticum*," Becker suggested the designation of "*Psychoticum*" for L.S.D. Umberto de Giacomo (6, 7), of Italy, in his experiments with rather large amounts of L.S.D. (300 to 500 gamma) observed in his patients catatonic-like phenomena, which were similar to those produced by bulbocapnine. M. Rinkel (12) and Victor H. Vogel (18) reported their experiences with diethylamide of lysergic acid, adding as new observations paranoic trends and, in contrast to previous publications, slowing of thinking and poverty of thought. Bush and Johnson (3) used L.S.D. as an aid in psychotherapy, and reported that their psychotic patients responded with an increase in activity and greater verbalization of psychopathology. They noted occasional short periods of confusion and disorientation, and occasional transitory visual hallucinations. Most of their patients showed some degree of euphoria.

#### Method and Procedure

In our own experiments, L.S.D. was given 17 times to 15 normal adult volunteers, students, nurses, and doctors, in the 19-48 age range, and, as freshly prepared solution, to some psychotics: dementia præcox and manic-depressive, depressive type. The observations on the psychotic patients are still in progress and will be published later. The



normal subjects, who were kept without breakfast, received L.S.D. in doses ranging from 20 to 90 gamma p. o., in most cases one gamma per kilogram body weight, while the psychotics were given 3 gamma per kilogram body weight. This increased dosage for psychotics was chosen on the basis of the unanimous reports in the literature that psychotic patients were particularly resistant to the effect of L.S.D. The subjects were kept under continuous observation by at least one of the authors for the first 5 hours and, on occasions, tape recordings of the subject's productions were made. The subjects remained under observation the same day at the hospital, and were seen again the following day. The main emphasis in our observations was on the clinical psychiatric picture. Routine neurological and circulatory system examinations were not done, but signs occurring in these areas were noted, if observed. In 9 of the experiments, electroencephalograms at or near 2 hours after L.S.D. were taken, and Rorschach tests were given to 5 normal subjects and concrete-abstract thinking tests to 2 subjects during the height of the L.S.D. reaction. Controls of EEGs and psychological tests were done while the subjects were in their normal mental state.

### Results

*I. Disturbances of Thought and Speech.*—The most prominent psychological changes observed were those in thinking and speech. They were present in all our experiments. There was no cloudiness of consciousness, no intellectual weakness, but most frequently we observed difficulty in the power of expression. The subjects became more and more slowed down, poverty of thought became apparent, and the flow of speech became increasingly diminished and blocked. One subject, a middle-aged depressed patient, went into a complete stupor. In another instance occurred unwillingness to speak, a symptom similar to the negativism of the schizophrenic. Hesitancy, indecision, and impairment of abstract thinking were frequently present; also looseness of thought and actual disconnection with increased distractibility were common observations. As in schizophrenic patients, some of the sub-

jects exhibited such phenomena as lack of spontaneity, irrelevance, pedantic imitation, and subjectively automatic speech. In one instance, we had the impression of the formation of a neologism. Acceleration of thought with flight of ideas associated with rhyming and punning; garrulity and loquacity of the hypomanic type were seen in a cyclothymic medical student within 45 minutes after the administration of L.S.D. In general, the effects appeared within 30-45 minutes after the oral administration of L.S.D., and disappeared gradually after 3-4 hours.

*II. Affect and Mood.*—Clear-cut blunting of affect and suspiciousness, as often seen in schizophrenic patients, were outstanding. These symptoms frequently led to feelings of indifference and unreality with disturbances in body image. The subjects experienced hostility and resentment, and on rare occasions ambivalence. The phenomena occurred about 15 minutes after the administration of L.S.D.; feelings of indifference and blunting tended to be protracted; suspiciousness, hostility, and resentment were always more transient. Changes in mood were twofold: euphoria and depression, which occurred in about equal number. Euphoria was either of the shallow elation type with silliness, as seen in the hebephrenic, or, in a cyclothymic subject, of the jovial and infectious type, as found in hypomanic and manic states. Depression was combined with dependency, indecision, insecurity, passivity, and feelings of being "lost." In no instance did we observe the happy and dreamy feeling of ecstasy as it has been described by other authors who experimented with L.S.D., mescaline, and other similar chemicals.

*III. Perception.*—Usually within 40 minutes after the intake of L.S.D. disturbances of perception were observed. Those of visual perception were most common and mainly of the illusionary type. The subjects would see rippling or wavy lines on the wall that might evolve into geometrical pattern, or be associated with color such as yellow, orange, or pink. In some instances, subjects saw a thermostat on the wall as a crucifix but fully realized that the experience was an illusion. None of the subjects, however, had the feeling of seeing something of extraordinary beauty, as it was stated in early re-



ports on L.S.D., or as it may occur under the influence of mescaline.

Gustatory disturbances occurred frequently; the subjects experiencing a metallic or "funny" taste or heavy tongue.

Auditory perception was changed only in a few instances. The subject would hear a sound that was either near or distant, and in one instance of a depressed patient, the noise of a typewriter in an adjoining room was perceived as music, seemingly beautiful music.

The sense of time was disturbed in 11 out of 17 experiments. It was characterized by the feeling of time accelerated or retarded.

IV. *Hallucinations and Delusions.*—Disturbances in perception, in a complex way, often lead to hallucinations and delusions. A vivid phantasy, a pseudohallucination or illusion, in the process of mental dissociation, may ultimately appear as a real object outside the subject and thus constitute a real hallucination. By a similar process, changes in auditory perception, combined with existing suspiciousness, may lead to ideas of reference and delusions of persecution. It may be stated that hallucinations, predominant under the influence of most *phantastica*, subsequent to the injection of L.S.D. were rather meager and never showed the quality of an extraordinarily beautiful or threatening experience. The occasional visual hallucinations consisted mainly of formed images, which occasionally were preceded by crude flashes of light. Perhaps the above-mentioned disturbances of taste perception should be mentioned here as gustatory hallucinations. In only one instance we noticed an auditory hallucination, which consisted in hearing bells, although there were none anywhere around. Haptic hallucinations were experienced by two subjects. One male subject had the rather vivid feeling of his trousers being wet from urine, and one female schizoid patient was convinced that she lost urine and wet her slacks and the bed. She actually, later on, did wet the bed, and it may be possible that her hallucination was stimulated by autonomic excitation of the bladder mechanism. Morbid ideas were common; they included ideas of reference and ideas of influence. One female volunteer became quite paranoid and was still disturbed the following day. Major delusions, ideas of gran-

deur or persecution, as seen in the delusional states of the paranoid or paraphrenic, were not observed. That may be due, perhaps, to the fact that in our experiments on normal volunteers we used only relatively small amounts of L.S.D.

V. *Depersonalization.*—Alteration of personality occurred rather frequently. Those changes consisted mainly in the subject's feeling that his legs were either extraordinarily long or heavy; in one psychotic patient the feeling was that the leg between ankle and hip had disappeared entirely. Most common was the feeling of unreality as regard to the subject, himself, and the outer world. Though these phenomena were of minor magnitude, they, too, indicate symptoms particularly observed in the schizophrenic patient. In no instance were we able to elicit experiences of synæsthesias, as frequently seen in mescaline intoxications.

VI. *Behavior.*—The most and striking change consisted in underactivity, associated with lack of spontaneity and initiative. One schizoid-depressed patient went into a state of catatonia; another one became stuporous. A female schizophrenic patient, who had received 3 gamma/kg. body weight of L.S.D., became agitated; after an initial state of inertia, she suddenly stood up and went through many and various motions. She knelt down, kissing the wall, the floor, the examining table, and progressively became more and more excited. She tore off her clothes and became noisy to such an extent that the experiment had to be terminated by the intravenous injection of 0.5 g. of sodium amytal. In our normal subjects, overactivity or inappropriate behavior was rarely noted, but psychomotor manifestations, such as smiling, giggling, and laughing, more often appropriate than inappropriate, were frequently observed. This was particularly so in a student of cyclothymic personality make-up.

VII. *Intellect.*—In our normal subjects, intellectual functions were never disturbed. The subjects were aware of what they were doing at every moment of the experiment. Their memory also never became disturbed; each one was able to give, in a written report, a description of all the experiences he went through. Also, the psychotic patients did not show any particular memory defect.

Patients whose verbal expression became slowed down and finally completely ceased, as in the case of stupor or catatonia, were able the following morning, under sodium amytal or d-desoxyephedrine, to recall their thoughts or personal experiences of the day before under the influence of L.S.D.

VIII. *Autonomic Nervous System*.—All normal subjects and also the psychotic patients had numerous subjective complaints and symptoms. Since they mostly belong in the group of disturbances of the autonomic nervous system, they are best described here. The most common symptom was change in appetite, which more often was decreased, and associated with nausea, than increased. Complaints of headiness, giddiness, faintness, tremulousness, and shaking were frequently expressed. The subjects complained of chilliness and coolness of whole or part of the body, lump and "funny" feelings in abdomen, constriction with oppression in chest and precordial discomfort, violent cramps and constriction in the abdomen in a patient who just happened to menstruate. Objectively observed were flushing, sweating, shivering, and shivering with goosepimples. Tachypnoea, salivation, pallor, sighing, and urgency of micturation were scattered observations. Changes in pulse rate and blood pressure were of minor magnitude and observed only occasionally. Involuntary smiling, giggling, or laughing were considered in the nature of "risus sardonicus" where the subject described these phenomena as occurring without or against his will. One subject stated that in a smile he felt as if his facial muscles were like plastic wax being moved by some inexorable force. Pupils were often maximally dilated.

Gross disturbances of the cerebrospinal nervous system were not observed, except in some instances "dysarthria," which consisted of a transient stumbling over words and was never marked.

IX. *Electroencephalogram*.—EEGs were taken in 9 experiments at about the height of L.S.D. reaction, and compared with the EEG of the same subject in his normal state. In general, the EEG changes were only slight. Principal changes occurred in the alpha rhythm, which was characteristically increased in rate from 1-3 cycles per second.

In one case, an individual who was very relaxed, a slowing of about 2 cycles per second was observed. Hyperventilation showed a diminished responsiveness and may be due to the subject's reduced cooperation.

#### X. *Psychological Tests*.

A. *Rorschach*.—Controlled Rorschach tests were given to 5 subjects at the height of L.S.D. reaction. All tests given during L.S.D. reaction showed abnormalities principally of the schizophrenic or paranoid type. There was noticed autistic thinking with decreased organization, contamination responses, and lack of logical thinking, also negativism and diminished emotional inhibition indicating anxiety, depression, and aggression. One Rorschach test revealed a moderately schizophrenic picture with autistic thinking and withdrawal.

B. *Concrete-Abstract Thinking*.—The tests consisted in employing proverbs and aphorisms and recording the subject's reaction. On the whole, the results, especially the wide range of responses in abstraction and over-generalized and tangential thinking, were similar to those obtained in schizophrenic patients.

#### DISCUSSION

The common denominator in all our experiments with L.S.D. on normal subjects is a profound transformation and alteration of the psychic state of the individual, as it is a common factor in all psychotic states. The various mental phenomena that we have reported were brought about by mere traces (1:1,000,000g/kg. weight) of a chemical, d-lysergic acid diethylamide tartrate. The mental phenomena show similarities to symptoms that occur in actual psychoses. We noticed, predominantly, changes similar to those seen in schizophrenic patients. The subjects exhibited preeminently difficulties in thinking, which became retarded, blocked, autistic, and disconnected. The affect was shallow or there was clear-cut blunting. Feelings of indifference and unreality with suspiciousness, hostility, and resentment also approximated schizophrenic phenomena. Hallucinations and delusional disturbances though present were much less prominent or striking, but together with the manifestation

of depersonalization were most reminiscent of schizophrenic dissociation.

To a much lesser degree were there similarities to the confusional states. Gross clouding of consciousness was absent in our experiments, but illusional misinterpretations were not infrequently observed.

A few cases showed similarities to the manic-depressive states, with changes in mood of euphoria or depression. However, only in one cyclothymic-pyknic subject the intensity was of a hypomanic or manic state.

Delusions of grandiose or persecutory nature, familiar in the paranoid psychoses, were not seen.

We mention the similarities of the experimental phenomena to actual psychotic states in order to caution against fallacies that may occur in the interpretation of experimental psychotic disturbances. The same caution that is warranted in the application of an animal experiment to a pathological condition in man is needed in the application of the psychiatric experiment to natural psychosis. Our experiments have brought to light the fact that, in a short space of time, under the influence of a mere trace of a chemical agent in normal subjects, a variety of mental symptoms occur that are similar to natural psychoses, and that in psychotic patients an accentuation of existing, or elicitation of latent, schizophrenic phenomena takes place. It may be possible to assume that fundamentally the mechanism of origin of natural and experimental psychotic phenomena is a similar one: a chemical agent that pathologically stimulates selectively various higher, especially perceptive, brain centers with the result of hallucinatory and delusional experiences. H. J. DeShon, M. Rinkel, and H. C. Solomon (5) have already pointed out that the clinical effects of L.S.D. imply such an involvement of the higher and highest centers of the central nervous system, and perhaps of lower levels of the nervous system as well.

Many authors assume that chemical endogenous substances are the cause of schizophrenic psychosis. We must bear in mind that, in addition to d-lysergic acid, a great variety of seemingly unrelated chemical substances are capable of producing transi-

tory psychotic-like symptoms. Although observations are still too few to allow the formulation of a well-founded scientific theory as to the chemical origination of psychotic symptoms, we strongly believe that this branch of experimental psychiatry is progressing in the right direction, and may some day provide an answer to the most perplexing problems in psychiatry.

#### SUMMARY

1. The effects of minute amounts of d-lysergic acid diethylamide tartrate (L.S.D.) on normal subjects, with an age range of 19-48 years, and some psychotic patients of the schizophrenic, depressive, and paranoid type are reported.

2. Psychotic phenomena and alterations of the autonomic nervous system were observed. The psychotic phenomena were predominantly schizophrenia-like symptoms that were manifested in disturbances of thought and speech; changes in affect and mood; perception; production of hallucinations and delusions; depersonalization and changes in behavior. The basic intelligence was not reduced.

3. Electroencephalographic examinations at the height of the L.S.D. reaction revealed only slight changes, principally increased alpha rhythm, except in one case where there occurred a slowing of about 2 cycles per second.

4. Rorschach tests showed abnormalities principally of the schizophrenic or paranoid type. Concrete-abstract thinking tests also, on the whole, showed responses similar to those obtained in schizophrenic patients.

5. No scientific theory for the origination of the natural psychotic phenomena or psychoses is being advanced, but the belief is expressed that experimental psychiatry progresses in the right direction.

#### Credits

Our preparation of L.S.D. was supplied, in ampules containing 1 mg. substance, by courtesy of Professor E. Rothlin, Director of the Pharmacological Laboratories of Sandoz Chemical Company, Inc., Basel, Switzerland.

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## EFFECTS OF Mescaline AND Lysergic Acid (d-LSD-25)<sup>1</sup>

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The administration of mescaline produces an acute reversible psychosis that consists of diverse psychopathological phenomena usually occurring in a clear setting of consciousness. The effects of the drug in normal subjects have been studied extensively, both clinically and experimentally, by Klüver, Beringer, Guttmann, and Stockings<sup>2</sup> among others. The reactions of mental patients have been described from different points of view by Zucker, Lindemann and Malamud, Guttmann and MacClay, and Rubin, Malamud, and Hope. We have also described our findings in nonpsychotic and psychotic subjects.

The present study follows our earlier investigations, which were recently reported.

We would like to discuss further observations made on patients suffering from schizophrenia. Fifty-nine patients, 24 males and 35 females, received synthetic mescaline sulfate (Bios Laboratories, New York City) intravenously. Dosages of 0.4 to 0.6 Gm. were used. The majority of the patients were closely studied either through previous psychotherapeutic contact or on a frequent observational basis. Thus, the patients' clinical symptomatology and responses prior to the drug administration were well known.

These 59 schizophrenic patients were subdivided into 3 groups. The first was comprised of 17 patients diagnosed as having the pseudoneurotic form of schizophrenia. Seven of these patients showed obsessive-compulsive and phobic states; 3, phobic-depressive states; 6, anxiety-tension-depressive states; and 1 patient, in addition to anxiety and obsessive manifestations, also displayed hyster-

ical and hypochondriacal features. Many of these patients would have been diagnosed elsewhere as severe psychoneurotics suffering from phobic or obsessive-compulsive disorders. The second group was comprised of 26 schizophrenic patients: 4 paranoid, 3 catatonic, 2 hebephrenic, and 17 mixed or unclassified. Seventeen of these patients showed no deterioration; the other 9, slight deterioration. The third group consisted of 16 schizophrenic patients: 4 catatonic, 5 paranoid, and 7 mixed. All these patients were definitely deteriorated, from moderately severe to severe.

The reactions of this series of schizophrenics to mescaline may be classified under the following headings: (1) physiological symptoms in the autonomic, motor, and sensory spheres, (2) disturbances of perceptual activity, (3) mental content, and (4) emotional alterations.

Most patients showed a vegetative disturbance that was more marked in the first and second groups than in the third. However, many of these disturbances are purely subjective and reporting of experiences was poorest in the third group.

Hallucinations occurred quite regularly under the drug. In the first group 15 patients had visual, 8 auditory, and 2 olfactory hallucinations. In the second group, 22 had visual, 8 auditory, 3 olfactory, 1 haptic, and 1 gustatory hallucinations. In the third group 7 had visual, 2 auditory, and 1 olfactory hallucinations. The predominance of visual hallucinations in schizophrenics corresponds to the same observations made on normal subjects. The low incidence of auditory hallucinations is interesting and in striking contrast to the high incidence of such hallucinations in drug-free schizophrenic patients.

Anxiety increase was the most frequent emotional change in schizophrenic patients under the influence of the drug. Many patients displayed hostility. Depression was not

<sup>1</sup> Read at the 107th annual meeting of The American Psychiatric Association, Cincinnati, Ohio, May 7-11, 1951.

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<sup>2</sup> See bibliography at end of succeeding article.



common and when observed was usually of the agitated type. A retarded depression was unusual. Concern with pre-existent symptomatology was often encountered. Evasiveness, vagueness, and denial were seen frequently. These manifestations were usually present before the drug was given and were reinforced under the drug. In some patients the obsessive-phobic symptomatology, which had been present, disappeared under the influence of the drug. Paranoid manifestations were very frequent. These were reinforced in some of those patients who had paranoid trends prior to drug administration. Paranoid manifestations also occurred as a new symptom in a number of patients, especially in those with the diagnosis of pseudoneurotic schizophrenia.

Some verbalized their mental content more openly than before, and memories pertaining to childhood or early life were revealed. However, this was not too common. Sometimes patients released material not previously verbalized, *e.g.*, fear of insanity or ideas of genital inferiority. Occasionally a patient relived actual traumatic experiences. All these manifestations were spontaneous. Some of the patients in the pseudoneurotic group, who had received psychotherapy for relatively long periods, disclosed some new material under the influence of mescaline. Some authors, and especially Stockings, have remarked that mescaline intoxication could be described as a "condensed psychoanalysis." The exact meaning of this is not clear. In a few instances, material with intense affect was verbalized of which the patient was not aware prior to the injection of the drug. There may be a relatively free flow of thought as the patient recounts what he is experiencing, but often we noted refusal to speak, blocking, inability to describe the strange experiences, or merely constricted, repetitive productions. It is not easy for us to see striking parallels between the mescaline experiment and psychoanalysis.

Sexual material occurred frequently in the productions of the schizophrenic patients under the drug. This is especially striking because normal subjects do not usually verbalize much sexual material. Mescaline is not a sexualizing drug in normals. We would like to relate a few samples of such content.

One patient talked about his penis being wet, small, or absent, and that he had breasts like a little girl. A female patient went through the experiences of childbirth. Another female patient talked of being raped and especially of being raped under water. Still another female patient went into a state of sexual ecstasy with memories and fantasies illustrative of practically all heterosexual and homosexual activity. She also expressed the desire to become a man, of swallowing the doctor's penis, and of its transformation into a baby. Another female patient recalled earlier sexual desire for her father. Quite a number of patients expressed sexual wishes, fears, inferiority feelings, fear of anal rape, early childhood memories, etc. Much of this material was a repetition or an elaboration of productions in a drug-free state.

Normal subjects and schizophrenic patients under the drug showed both similarities and dissimilarities in their reactions. The vegetative changes—pupillary dilatation, nausea, and vomiting—occur in normals and psychotics. The visual hallucinations, illusions, and distortions of body image occur in both. The content of the perceptual changes appears to be roughly comparable in both groups. For instance, the form of visual hallucinations is the same. The alterations of time sense, unreality feelings, and thought-language changes are similar. In the emotional sphere, occasional depression and frequent paranoid manifestations are seen in both groups. The hebephrenic and catatonic pictures produced in normals are also similar to those seen in schizophrenics.

Nevertheless, there are differences between the reactions of normals and schizophrenics to the drug that must be noted. For instance, the euphoria occurring in normals is stressed by all investigators. Euphoric manifestations were occasionally observed in our schizophrenic patients, but were very much in the background. Sexual content and behavior are frequently encountered in schizophrenics under the drug; these are rare among normals. Generally speaking, the reactions of schizophrenic patients to the drug are much more intense; anxiety is more marked, and disorganization of thought and emotional patterns is very probably more common and intense than in normals, but we are not yet



prepared to say whether these differences are also qualitative. We feel, however, that quantitatively the reaction to the drug is more marked and is associated with more disorganization in schizophrenics than in normal individuals. The normal individuals retain a better reality control, remain more as observers of the various perceptual changes, than actually living in them. It is our impression that, even though many symptoms produced by the drug in normals resemble those of schizophrenia, they are not exactly the same; whereas, in schizophrenic patients, the drug reinforces the schizophrenic symptomatology and magnifies it.

There is also a difference in reaction between patients who have a schizophrenic illness on one hand, and normal individuals and schizophrenic individuals under the influence of mescaline on the other. For instance, in schizophrenics who are not mescalinated, geometrical forms of hallucinations are uncommon, but do occur frequently in normals and schizophrenic individuals under mescaline. The unreality experiences are more directly related to altered perception in both normals and schizophrenics when they are under the drug. This is not seen as clearly in nonmescalinated schizophrenics. The same is true regarding alterations of the body image.

We also made investigations with lysergic acid, a drug introduced by W. A. Stoll in Switzerland, and since applied by other authors. This drug is a synthetic amide prepared from natural d-lysergic acid and diethyl amide, and belongs to the ergobasine group. It was found that lysergic acid does not produce classical organic psychotic pictures, but in very small amounts brings on clinical symptoms similar to those seen in the functional psychoses and especially in schizophrenia. This rather specific mental picture was induced repeatedly and uniformly in normal individuals.

The action of lysergic acid is of great interest because it is chemically different from mescaline, which produces similar symptoms, and because the symptoms are brought on by the oral administration of exceedingly small amounts of this substance.

The solutions of d-LSD-25, which were given us for experimental purposes by the

Sandoz Pharmaceutical Company, contained either 20 or 100 gamma per cc. The experiments in the literature were usually carried out with 30 to 40 gamma of d-LSD-25. Usually one-half to one hour after taking the drug, the patient begins to show symptoms that reach their peak after 2 hours, and then the drug action begins to decline. The whole action lasts from 4 to 6 hours, after which the patient usually returns to his original state.

In normals d-LSD-25 produces vegetative symptoms—nausea, malaise, headaches, dizziness, palpitation, dilated pupils, sweating, and diuresis. The blood pressure is reduced, and at times bradycardia is present. A number of patients show ataxia; the Romberg sign is positive; speech is somewhat dysarthric, and forced laughing is also seen. Perceptual changes are in the foreground. Illusions and hallucinations are very common. Geometrical figures, light, and brilliant colors are usually seen. These hallucinations and illusions are very impressive to the subject. Hyperacusis is noticed, but auditory hallucinations are rarely present in normals. Despite the unpleasant vegetative manifestations, many persons who take the drug feel a comfortable lassitude and euphoria. They show a tendency to disinhibition with an increased psychomotor activity and flow of speech. At times lability of affect and depression are also noted.

Our investigations were concerned mainly with the reactions to lysergic acid of patients suffering from schizophrenia, and especially from the point of view of comparison with mescaline effects.

To date, 21 patients have been studied. Some have received the drug repeatedly. Nineteen of the 21 patients also received mescaline, 16 by intravenous and 4 by the oral route (both routes at different times in one patient). The dosages of lysergic acid used varied from 10 gamma to 120 gamma.

Mental changes in our patients occurred mainly if 60 or more gamma were used; below 60 gamma, and sometimes even over 60 gamma, we found the symptoms produced to be unreliable. The 21 patients were all diagnosed as suffering from schizophrenia: 5 pseudoneurotic, 12 mixed, 2 catatonic, and 2 paranoid. Of these patients, 15 showed no deterioration, 4 mild, 1 marked, and 1 severe

deterioration. The vegetative, autonomic, motor, and sensory disturbances in our patients were chilliness, headache, trembling, flushing, pupillary dilatation, numbness of hands, sense of heat, nausea, vomiting, unsteadiness, and hyperacusis. The symptoms occurred 30 to 60 minutes after ingestion of the drug and were very similar to those reported in the literature in normals. The symptoms were also quite similar in the same patients when they received mescaline. The difference, however, in response to lysergic acid was that the changes were less intense and less diffuse than with the intravenous administration of mescaline, but comparable in intensity with the oral use of mescaline. The perceptual disturbances associated with lysergic acid included hallucinations and illusions of the personal and nonpersonal environment and somatic disturbances.

Visual hallucinations with lysergic acid occurred with a significantly lower frequency than with mescaline. The other perceptual disturbances occurred with about the same frequency. In general, the content of the visual hallucinations—geometrical figures, colors, inanimate and animate objects—were the same with both drugs. In some cases the same types of perceptual disturbances occurred with both drugs in the same patient in the same way. Somatic disturbances were more diffuse and intense with mescaline than with lysergic acid. The time sense was affected in the patients with lysergic acid similarly as with mescaline. In the majority of cases the disturbance was a slowing of the subjective recognition of the flow of time. Unreality feelings were experienced by the majority of the patients with lysergic acid, similarly as with mescaline, but these feelings in general were much less intense with lysergic acid. In the majority of cases the unreality feelings were referred by the patients to disturbances of perception. This was characteristic of both drugs. Disturbances in thought and language processes occurred in every patient receiving lysergic acid when the doses exceeded 10 gamma. This incidence was comparable under mescaline. The most frequent complaint associated with lysergic acid intoxication was a sense of impaired concentration or thinking ability. Patients often related this to a haziness of

mind and the sedative-like effect of the drug. Patients sometimes commented on a therapeutic aspect of the sedative-like effect. In some of the patients, speech tended to become slow, sluggish, and slurred, similar to the response to an intravenous barbiturate. Two subjects commented on some pressure of thought in addition to a sense of muddled thinking. None of the patients who suffered from the pseudoneurotic form of schizophrenia showed a frank schizophrenic thinking disorder with lysergic acid (or with mescaline). In some of the overt schizophrenics, however, thinking disorders became more marked, such as increased evasiveness, blocking, scattering, and irrelevance. However, in patients who became quite anxious, the stream of thought showed the usual concomitants of anxiety, with increased or decreased verbal productivity and constriction of content. Emotional disturbances were very common under lysergic acid. Seven patients responded with relaxation, drowsiness, and euphoria. In some patients these mental changes were mixed with increased anxiety. Six patients were depressed with retardation. Three patients showed alternating euphoria and depression, and 6 patients had a predominantly anxious reaction. Associated with the anxiety were irritability, resentment, and a suspicious attitude. Frank paranoid delusional constellations were quite infrequent as compared with the responses to mescaline. Two patients exhibited an intensification of catatonic manifestations and 1 paranoid patient showed a more intense paranoid attitude. No significant effect occurred in 3 patients. Similar reactions of the same patient to both drugs were in the nature of anxiety, coupled with irritability, resentment, and suspicion. The depressive pictures were also very similar. The intensification of catatonic and paranoid pictures was essentially the same. Dissimilar reactions of the same patient to the 2 drugs were attributable in part to a relative absence of effect with lysergic acid, which, however, may be the result of the route of administration. The mescaline was used mainly intravenously and the lysergic acid orally. Therefore, the symptoms occurred in response to mescaline more rapidly and massively, and more gradually and less intensely with lysergic acid. The

euphoric reactions that were present in response to lysergic acid were not present in the same subjects with mescaline. The majority of patients, under the influence of lysergic acid, failed to produce new material.

In all 3 groups of schizophrenic patients in whom mescaline or lysergic acid, or both, were used, the well-preserved first group of pseudoneurotic schizophrenics and the second group of undeteriorated or moderately deteriorated overt schizophrenics showed the more intense overt emotional reactions to the drug. In the third group of severely deteriorated schizophrenics, the emotional response was at times intense, but often no content was verbalized and gross catatonic withdrawals ensued. The physiological alterations, especially the vegetative ones and the perceptive alterations, like the visual hallucinations, were quite often as intense as those seen in the first 2 groups.

The question arises as to the consistency of the response of a given person if exposed at different times to the drug. On successive occasions the response to the drug, of course, is a very complex issue and depends on many physiological and psychological factors at a given time. It was assumed by some that in many patients the response to the drug would be different from time to time and that the patient would adapt himself to the experiences under the drug and become less responsive to it. In some of our patients these alterations in response actually occurred. In the majority of the patients, however, with the exception of decreased anxiety, tension, and unreality feelings, such manifestations as paranoid attitudes, silliness, schizophrenic thinking disorders were often reproduced with the same intensity as before. Often more euphoria was noted on repeat administrations. We have found that schizophrenic patients retain the basic pattern of response to repetition of mescaline. This is clearly illustrated by patients to whom the drug was given before and after topectomy. After topectomy the reactions were often very similar as before, even in those patients in whom postoperative improvement or recovery took place. Mescaline was able to reactivate the psychosis in every detail after the operation. In some patients the quantity of the response was reduced.

We have used mescaline and lysergic essentially for investigative purposes. Both drugs are very important in producing schizophrenic-like reactions in normal individuals, in magnifying the schizophrenic structures in schizophrenic patients, and in studying the personality structure of different individuals under drug stress. Through the use of these drugs we believe that valuable contributions can be made to the understanding of the organic and functional psychoses. We have attempted to use these drugs for diagnostic, prognostic, and therapeutic purposes. We do not believe that the evidence available today would permit their reliable use for any of these clinical approaches. It is undeniable that the drug precipitates an overt schizophrenic psychosis in some individuals in whom pseudoneurotic schizophrenia is diagnosed. However, these overt psychotic responses produced in pseudoneurotic schizophrenics will have to be qualitatively and quantitatively differentiated from schizophrenic-like clinical pictures in so-called normals under the drug. We feel that in a number of instances we are able to differentiate between schizophrenic-like responses in normals and overt psychotic reactions in pseudoneurotics, but not invariably. Therefore, further investigations in this field are warranted.

Mescaline has also been used by some investigators, just as sodium amytal, pervitin, and other drugs have been used, to accelerate psychotherapy or to obtain psychodynamic material not otherwise available prior to the drug treatment. We have mentioned that some of our patients revealed new material under the drug. However, in many patients whose psychodynamic structures had been well investigated prior to the drug experiment, nothing new was learned. The extent to which mescaline and lysergic acid will be of use in therapeutic work must be ascertained in a study of a large number of patients. Further investigation is certainly indicated. It is possible that mescaline, like amytal and other drugs, can also be used for prognostic purposes. Deteriorated schizophrenic patients apparently respond differently to the drugs than do well preserved schizophrenic patients. It is possible that regressed patients have a different reaction

to it than deteriorated patients, but our knowledge here is still very scant. The differences in the responses of various schizophrenic patients would indicate that many variables enter into the reaction of a schizophrenic patient. It is impossible, today, to establish a common denominator in all the responses of these patients to mescaline and lysergic acid.

#### SUMMARY

The effects of mescaline and lysergic acid were studied in schizophrenic patients. It

was found that physiological changes were produced in these patients and that their mental symptomatology was markedly aggravated. The observations made with the above-mentioned drugs on normal individuals were compared with those seen in schizophrenic patients. Mescaline and lysergic acid are drugs that disorganize the psychic integration of a person. This disorganization is much more apparent in schizophrenics than in normals. The diagnostic, prognostic, and therapeutic use of these drugs is also discussed.

## EFFECT OF DRUGS

### THEORETICAL CONSIDERATIONS FROM A PSYCHOLOGICAL VIEWPOINT<sup>1</sup>

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We have extensive literature on the effect of drugs on human beings. From a psychiatric point of view, however, the reaction between a drug and the human psyche is still only partially understood. Actually many basic questions remain unsolved. For instance, we do not know whether or not a person responds in the same way to a certain drug or reacts differently at different times. Do normal and abnormal persons respond in the same way? Can all normal individuals be made apparently psychotic under the influence of drugs or only predisposed individuals? Are the apparent psychoses produced in normals the same as those seen occurring spontaneously in some members of the population? Are the differences seen in these reactions qualitatively or quantitatively different from each other, and from the spontaneously occurring psychoses? Comparatively few studies have been made in the administration of drugs under controlled studies and investigating at the same time the biochemical, neurophysiological, and psychiatric responses. The use of different drugs on the same individual in an experimental setting is even less common.

Theoretical considerations can be better formulated if we contemplate different drug-induced states in the same individual and, of course, compare them with such reactions occurring in different personality types or in different mental disorders. These investigations with different drugs on the same individual will offer a very significant method in determining how far certain drugs have

a specific action, and in what way different individuals handle the drug intoxication stress.

At different times we administered sodium amytal, pervitin, and mescaline to each of 16 patients suffering from the pseudoneurotic form of schizophrenia (Group 1), 24 patients suffering from an overt form of schizophrenia with slight to moderate deterioration (Group 2), and 9 schizophrenic patients with severe deterioration (Group 3). In the first group, sodium amytal showed a normalization in 75% of the patients. With pervitin, 56% of the patients normalized, whereas under mescaline no normalization took place. Instead, in every patient under mescaline an intensification of some aspects of the existing clinical picture was achieved. Normalization with amytal took place in 62.5% of the Group 2 patients, normalization with pervitin 29.2%, and an intensification with mescaline in 100%. In the third group, normalization with amytal was 44.0%, and with pervitin 22.2%. Again mescaline intensified some aspects of the clinical picture in all patients. These comparative data indicate that the frequency of normalization decreased progressively with amytal. The pseudoneurotic schizophrenic group showed the highest frequency. The severely deteriorated schizophrenic group showed the lowest tendency to normalize, with the overt schizophrenics with moderate deterioration in the middle. Very similar observations were made with pervitin. Not only the frequency of the normalization was the highest in the first group and lowest in the third, but in addition the intensity of the normalization followed a similar picture. Under amytal or pervitin, the patients belonging in the first group showed a much more complete normalization than those in the third group. Lysergic acid often produced similar

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results in the same patient as those found under mescaline, except that the intensity of the symptoms was usually not as marked with the former drug.

Table 1 contrasts the actions of sodium amytal, pervitin, and mescaline on our patients.

The normalization with sodium amytal was complete in many patients particularly in the pseudoneurotic group with a massive temporary reduction of all pre-existent symptoms of anxiety, tension, irritability, hostility, depression, guilt, inferiority feel-

Pervitin also produces normalization, but it is quite dissimilar to that produced by amytal, both objectively and subjectively. After a brief period of uncertainty and mild anxiety, the patients report a sense of relaxation to the point of drowsiness which, however, is never as intense as with amytal. They also report a reduced anxiety and tension. This state soon passes into one of positive well-being with increased mental alertness and clarity, energy, and optimism, feelings of increased verbal facility with a sense of normal assertiveness. As with amytal, all

TABLE 1  
ACTION OF SODIUM AMYTAL, PERVITIN, AND Mescaline IN GROUPS 1, 2, AND 3

	Sodium amytal	Pervitin	Mescaline
<i>Physiological</i> .....	Sedation: relaxation; occasional agitation.	Initial relaxation → "stimulation" mood and thinking. Peripheral: mouth, breathing, numbness, etc.	Diffuse autonomic, sensory, motor; "sedative" effect occasional.
<i>Perceptual</i> .....	Decreased attention → secondary neglect of environment.	Stimuli usually felt more "alertly."	Distortions and false perceptions.
<i>Affect and mood</i> .....	Warmer, more adequate. Decreased anxiety. Occasional discharges excessive affect.	Normalized or discharges of excessive affect.	Accentuation and excessive affect experiences.
<i>Contact and communication</i> .....	Increased.	Increased.	Increased or decreased.
<i>Psychotic features</i> .....	Reduced.	Reduced or increased.	Increased.

ings, and self-concern. Most patients were aware of the sedative action of the drug and some degree of symptomatic relief. A more or less euphoric state with varied degrees of optimism and cheerfulness occurred in the normalized subjects. In 25% of the patients the action of the drug was diphasic in the sense that both normalization and intensification effects occurred. Patients showed such changes as transient auditory and visual hallucinations, or severe emotional discharges consisting of depression, crying, and shame. Most of this depressive material was related by the patients to their ineffectiveness as individuals. Some showed increased anxiety or hysterical type of manifestations; others released delusional material. This latter became obliterated by the appearance of relaxation, euphoria, and normalization. Normalization in some patients either preceded or followed intensification effects.

pre-existent symptoms tend to disappear. Patients were divided as to their preference for the 2 drugs. Some preferred the increased mental clarity under pervitin; others found the sedative action of the amytal preferable to the somewhat unpleasant central "stimulation" action of the pervitin. Some patients also displayed a diphasic action with pervitin. Hostility, ambivalence, anxiety, guilt, shame, and depression increased in a transient way in some patients, some of whom, however, concurrently experienced feelings of relaxation, well-being, and euphoria.

In marked contrast to these observations with amytal and pervitin are the findings with mescaline and lysergic acid. In schizophrenic patients, especially in those with an anxiety structure, mescaline invariably reinforces this affect to some degree without leading later on to outspoken euphoria or to



a state of well-being. This is quite a contrast to the euphorizing action of oral mescaline reported for normal individuals, and in marked contrast to the actions of pervitin or amytal.

The ability of a given patient to normalize under pervitin and amytal is not correlated with the degree of disorganization under mescaline. Some patients with nearly complete normalization under amytal and pervitin showed the most severe disintegration under mescaline.

This contrast between the normalizing effect of sodium amytal on one hand, and the aggravation of the clinical picture with mescaline on the other hand, is striking.

From a theoretical point of view it is important to see the reactions to these drugs in different personalities. Beringer, in his work on mescaline, did not find any correlation between personality and drug reaction. Stockings believed that cyclothymic and schizothymic individuals respond differently. Bensheim thought that the cyclothymic group responded with euphoria and depression, and the schizothymic group with ecstasy. Lindemann and Malamud experimenting with sodium amytal, cocaine, hashish, and mescaline on the same patients found that each drug has its specific characteristics, that the changes produced by a given drug were elaborated in the light of the pre-existing psychic state and molded by the individual characteristics and background of the person himself, by his "whole personality." Guttman and MacClay found that "pure" emotional reactions of euphoria or depression under the drug were found in patients clinically diagnosed as endogenous depressions. He differentiates these clear cyclothymic responses from those seen in schizophrenic patients under the drug. Rubin *et al.* pointed out quite correctly that the drug responses can be divided into 2 parts: one, those responses that are characteristic of a given drug regardless of the patient in whom they occur, and second, those seen in a given patient regardless of the nature of the drug used. The first could be called a collective reaction and the second an individual reaction dependent on the individual's personality and the specific features of the individual's psychosis. Guttman also found that

the Rorschach test responses in a given normal person differed before and during mescaline intoxication.

To summarize the most important contributions in this field it was found by some that pre-existent schizothymic and cyclothymic personality traits were intensified or that qualitative differences in response occurred under the drug in the 2 groups, while others did not feel that such a correlation existed. Furthermore, the changes produced by the drug were elaborated on the pre-existent psychotic state based on the total personality organization.

In our case material we found that the physiological changes occurring with the given drug, especially those concerning the vegetative nervous system, occur uniformly in most individuals who receive the drug. These changes are characteristic of a given drug although a general rule can be stated: The quality of the psychic alterations varies less widely than the mental content. In most patients some aspects of the drug experience are seemingly a direct continuation of previous personality factors. For instance, a patient who shows obsessive character traits before the drug experiment may display the same obsessive structure while intoxicated. The same is often true about anxiety attitudes, intellectualizations of conflicts, pre-occupations with artistic, philosophical, or other matters. The content of the hallucinatory experiences may be highly personal and of the complex-determined type. One of our patients, for instance, saw the devil and female genitalia in a hallucinatory state. He was preoccupied with religious and sexual conflicts prior to the drug experiment in a nonhallucinatory fashion. Another patient hallucinated his mother's funeral and saw his hand turned into a claw. The content of these hallucinatory experiences was present in a very similar form in dreams and free associations prior to the drug-induced state.

Depersonalization experiences were sometimes also linked with past events. For instance, a patient felt that the depersonalization during the drug intoxication was identical with what he experienced in childhood. The sexual responses under the drug also often relate to previous preoccupations. On

the other hand, in a small group of patients entirely new material and reactions appeared that could not be linked to previous experiences and might be considered as a new facet of the personality, only appearing under the drug.

Why sodium amytal has a normalizing influence in many patients and mescaline a disorganizing one is not known. It is important to mention here that, if amytal is given to a mescalinated person, it will temporarily reduce or eliminate the mescaline effect. For a few hours it is antagonistic to the mescaline effect on the psyche. Further study of such antagonistic drug actions may clarify some of the basic drug responses of which we know so little. These drug experiments may also clarify the vexing problem as to what is primary and what is secondary in the affective disturbances of a drug-free psychotic. For instance, in our investigations, the patients with mescaline often showed anxiety and tension initially. Later on more complex emotional reactions such as depression and paranoid manifestations occurred but were seemingly secondary elaborations. In some other patients, however, this connection cannot be demonstrated. Further research will have to clarify these observations.

The study of the anxiety structure of these patients under different drugs will have to be undertaken to determine if anxiety occurs as a primary phenomenon or follows as a phenomenon secondary to basic physiological alteration in the organism.

We have pointed out that the alterations in the vegetative nervous system appear first under the influence of mescaline, lysergic acid, pervitin, etc. This is usually followed by alterations of perception, bodily sensations, and changes in body image. In many patients it would appear that the perceptual alterations are conducive in producing anxiety, uncertainty, and, at times, rage. Seemingly, the perceptual alterations lead to a lowering of reality control, thence to tension and anxiety, which in turn lead to depressive, aggressive, and paranoid manifestations. Schizophrenic patients whose reality contact is already impaired are seemingly more vulnerable to drugs that have a disorganizing effect on reality perception.

As yet it is unclear whether the emotional alterations seen in these patients are due to a physiological action of the drug *per se* or due to the experiencing of an alteration of reality and other changes on a psychic level. In recent experiments it has been demonstrated that a sudden alteration of perception of space is able to produce anxiety reactions. These drug experiments indicate that a disturbance of homeostasis physically and emotionally leads to a lowering of mental integration, which, in turn, leads to different emotional symptomatologies or disorganization patterns as seen in schizophrenia. Drugs that would appear to have the opposite effect on mescaline such as amytal have a reintegration action and the reverse is seen.

One of the most important issues to be clarified is the question—are the schizophrenic-like psychoses produced by mescaline, lysergic acid, and other drugs the same as the spontaneously occurring schizophrenias or not. The mental pictures seen in normals show features that are frequently observed in schizophrenia. Nevertheless, there are differences and these, in our opinion, do not permit an analogy to be drawn of the 2 conditions. The question also arises, can a schizophrenic psychosis be released in individuals predisposed to the disorder more readily than in normals? How far the drugs create something new in the organism or only release that which is already present remains an open question until the physiological and psychological findings are correlated more closely.

In this presentation we have tried only to touch upon a few of the theoretical questions that can be raised. In the future the experimentally produced abnormal mental states will significantly contribute to and clarify many psychopathological questions. This will be especially true if we are able to create and abolish emotional states with more facility than is possible today.

#### SUMMARY

This paper discusses theoretical points of drug-induced abnormal mental states. The reaction of 3 different drugs, sodium amytal, pervitin, and mescaline, on the same individual is described and the differences

noted. The relationship of personality type to drug reaction is evaluated and the normalizing and disorganizing effect of certain drugs on mental patients discussed.

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## MECHANISMS OF ACTION OF DRUGS THAT MODIFY PERSONALITY FUNCTION<sup>1</sup>

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In recent years, a considerable body of data has been acquired concerning the effects of a variety of narcotic and other drugs on patients at the U. S. Public Health Service Hospital, in Lexington, Ky. On many occasions, it has been possible to study the effects of the same drug, and of different drugs, on one individual, as well as on large groups of patients, under relatively well-controlled experimental conditions. The material to be presented here has been derived in large part from such studies on patients with previous histories of drug addiction (postaddicts). While some of the net effects of drugs on such subjects may well differ from those on nonaddicts, it may be assumed that the mechanisms of action are similar. In addition, much information has been gained from animal studies, chiefly on the dog and cat. In the following sections, the effects of a large number of drugs on sensorium and state of consciousness, affect and mood, ideation and behavior, will be described, and where possible, mechanisms of action will be considered in terms of psychodynamics, performance and neurophysiology.

### SENSORIUM AND STATE OF CONSCIOUSNESS

In doses that do not produce profound stupor, morphine and its analogues, and the newer synthetic analgesics such as meperidine and methadone, do not impair the sensorium as far as can be determined by clinical and psychological testing, except for slowing of reaction time(1, 2). Even in small doses, such drugs act as powerful analgesics. The mechanisms underlying analgesia are still not fully elucidated. The ability to perceive or estimate the intensity of painful stimuli may be unaffected by ad-

ministration of analgesic doses of these agents, although under certain conditions "pain thresholds" may be elevated(3). The potent analgesics do reduce the magnitude of a number of physiological responses to painful stimuli, such as changes in skin resistance(1). However, nonanalgesic doses of barbiturates exert such effects also(4). Both "pain threshold" and "reaction to pain" may remain unchanged in patients in whom intractable pain has been relieved by frontal lobotomy(5). Observations such as these suggest that an important mechanism by which the potent analgesics relieve pain is the reduction of anticipatory anxiety, or fear of pain. Such a hypothesis is supported by evidence that morphine reduces the disruptive effects on performance that are consequent to previous electric shock penalizations in experimental studies on hand reaction times to visual stimuli(2). From a neurophysiological standpoint, these potent analgesics possess remarkably similar properties. They all depress after-discharge mediated through closed internuncial chains, without affecting or even enhancing other responses in the central nervous system(6). This has been demonstrated most clearly in spinal preparations(7), but it is possible that similar specificity obtains at higher levels of functional integration. The relation of such actions to analgesia is hypothetical, but all agents that possess such properties have at least some analgesic effects, although, in the case of barbiturates and mephensin, pronounced analgesia can be obtained only in doses that have marked depressant actions on other functions, such as are subserved by diencephalic reticular mechanisms and brain stem postural mechanisms(6). Such side-effects produce excessive drowsiness or muscular weakness and impair the clinical usefulness of such drugs as analgesics. From the standpoint of regional localization it is likely that the cortical or at least the supraspinal actions of the potent analgesic agents are most closely related

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to their efficiency in relieving pain, since analgesic doses of morphine have little effect on lower limb reflexes in chronic spinal man (8). The electroencephalogram apparently does not reflect such presumptive cortical changes, since it remains essentially unchanged in many individuals after administration of analgesic doses of opiates or similarly acting drugs (8, 9).

Another property that the potent analgesics have in common is the convulsant action of large doses of these drugs in animals, which appears to be cortical or cortical-diencephalic (10, 11). The relation of mechanisms underlying such actions to those of analgesia is dubious, however, since the analgetic and convulsive potencies of these drugs are not parallel (12). Miosis, which is a regular effect of the opiate-like analgesics in man, appears to be due to direct or indirect stimulation of the parasympathetic pupilloconstrictor centers in the mesencephalon (13, 14). That this mechanism is not closely related to those that subserve analgesia is indicated by the fact that the opiate-like analgesic agents produce mydriasis in cats and monkeys (12), while allylnormorphine, the analgesic potency of which is dubious, regularly produces miosis in man (15). Similarly, while all the opiate-like analgesics have spasmogenic effects on smooth muscle (16), the same is true of such drugs as physotigimine, which have no analgesic actions.

After administration of large single doses of the potent analgesics, or after repeated small doses, varying degrees of drowsiness are produced. However, except after near-lethal doses, the subject can be aroused readily by various stimuli, especially if suddenly applied. After arousal, little if any impairment of sensorium can be demonstrated. Sleep and wakefulness appear to be regulated by diencephalic and mesencephalic reticular mechanisms (17). Presumably therefore, the potent analgesics have depressant actions on these mechanisms. In both man and in animals, "sleep" patterns in the EEG may be observed after administration of large doses of these drugs (9, 10). However, electroencephalogram "sleep" patterns without clinical evidence of somnolence have been observed both in man (9) and in the rat (18) after morphine. In the dog, electro-

encephalographic "sleep" patterns can be induced by small doses of morphine, which have little if any hypnotic effects; in this species, merely whistling or calling the dog results in an abrupt transformation of the EEG from one characteristic of "sleep" to that of "arousal" (8). Moreover, during addiction to morphine or methadone, progressive general slowing of the EEG occurs, but such changes bear no quantitative relationship to changes in sensorium (19, 20). During addiction to meperidine, similar changes are observed in the EEG, yet psychoses with delusions and marked impairment of the sensorium may occur (21). Paroxysmal disturbances in the EEG may develop during addiction to meperidine (21) or keto-bemidone (22), with or without clinical seizures. During the abstinence period following abrupt withdrawal of the opiate-like drugs, the sensorium remains intact in the majority of cases, except for intermittent drowsiness, described by the patients as "y'en sleep." Concomitantly, increased slow activity may or may not be observed in the EEG (22).

In small doses, barbiturates may not impair the sensorium significantly. Mild analgesic effects of such doses have been reported (23) and evidence exists that the mechanisms that have been postulated to explain the analgesic effects of the opiate-like drugs may apply to barbiturates as well (6). However, in order to obtain analgesic effects comparable in degree to those produced by morphine, much larger doses of barbiturates must be administered. In such amounts, barbiturates dull the sensorium and produce much more drowsiness than do the potent analgesics. Clinically, the subject's reaction time is greatly slowed, performance on psychologic tests in which time is a factor is greatly impaired, and arousal is difficult to achieve (24). These changes are accompanied by neurologic evidence of diffuse disturbances in function, particularly in coordination and postural regulating mechanisms. Even after small doses of barbiturates, especially when they are administered intravenously, marked changes occur in the EEG (26). However, the intensity of such changes is not paralleled quantitatively by those observed clinically (8). During chronic addiction to barbiturates, severe mixed fast



and slow dysrhythmias may be observed in patients with minimal clouding of the sensorium, and conversely, mild forms of this type of dysrhythmia may occur in patients who are semisomnolent, confused, and disoriented(8). The evidence of diffuse action of barbiturates that is observed clinically is also reflected in their effects on the excitability of neuron somata, which appear to be that of simple, progressive depression(26). This effect has been ascribed to stabilization of the neuron soma with consequent elevation of its threshold for depolarization by synaptic potentials(27). From a regional standpoint, the cerebral and cerebellar cortex and the basal reticular activating mechanisms appear to be particularly sensitive to barbiturates. With graded doses of these drugs, "stimulant" effects may be demonstrated, but these are readily explained as "release" phenomena(6). The only direct stimulant action of barbiturates of which the author is aware is the antidiuretic action of some drugs of this class, which is ascribed to hypothalamic stimulation (28).

During the abstinence period following abrupt withdrawal of barbiturates in subjects who have taken such drugs in large doses (*e.g.*, 1.0 Gm. of seconal daily) over a period of several months, generalized convulsions and psychoses with or without impairment of the sensorium often develop. Concomitantly, the EEG usually shows increased diffuse slow activity and paroxysmal discharges. However, such changes may be seen in persons without changes in the sensorium, as in some subjects during abstinence from barbiturates, in others after withdrawal of keto-bemidone, and in untreated patients with epilepsy during seizure-free intervals. Conversely, the EEG may be normal in patients with severe impairment of the sensorium, as in Korsakoff psychosis (30).

The effects of alcohol have not been investigated systematically in this laboratory. However, as far as effects on the sensorium and state of consciousness are concerned, alcohol appears to act in much the same way as the barbiturates. The electrical excitability of the cerebral cortex may be enhanced by intraperitoneal injection of small doses of alcohol in cats(31), but in general

the "stimulant" effects of this drug can be explained as "release" phenomena consequent to depression, at least with neurophysiological techniques. The disturbances in sensorium and state of consciousness observed in alcoholic delirium tremens are quite similar to those occurring during abstinence from barbiturates. The fact that alcoholic delirium tremens can be treated with considerable success by abrupt withdrawal of alcohol does not militate against the concept that this condition is an abstinence phenomenon, since invariably this type of treatment includes also the administration of large doses of paraldehyde or other effective substitutes for alcohol.

Cannabis, whether administered in the form of smoking marihuana cigarettes or ingestion of small doses of pyrahexyl compound, does not alter the sensorium in most individuals, except that space perception and time sense may be distorted(32). Amphetamine, in small or moderate doses, has no discernable effect on the sensorium except for increased wakefulness. Small doses of cocaine have similar effects. In most subjects, mescaline or the diethylamide of lysergic acid do not impair orientation, memory, or contact with the environment in doses sufficient to induce hallucinations and illusions(8). N-allylnormorphine, in single high doses, produces a peculiar dreamy state in man; actual sleep is not induced, and the sensorium remains intact(15). However, in some persons with prepsychotic personality structures, major psychoses with or without impairment of sensorium may be induced by any of these drugs.

Cannabis, amphetamine, cocaine, mescaline, and the diethylamide of lysergic acid have in common the property of sympathomimetic actions. However, the relationship of these phenomena to the presence or absence of changes in the sensorium and state of consciousness is irregular. While the clinical changes produced by this group of drugs may be described as "stimulant," other effects may be "depressant." Thus amphetamine raises the threshold of electrical excitability of the cerebral cortex in animals(33). In man, smoking marihuana cigarettes produces a lowering of alpha percentage and increased low voltage fast activity, whereas



small doses of pyrahexyl compound, which have similar clinical effects, tend to produce diffuse slowing in the EEG (32). However, as a general rule, it may be stated that, when any of the drugs considered produces marked arousal or increased wakefulness clinically, they also produce some degree of desynchronization of the EEG. It may be inferred therefore that, in such instances, these agents stimulate basal reticular activating and waking mechanisms, though the 2 processes are not identical.

#### AFFECT AND MOOD

The opiates and newer synthetic analgesics, barbiturates, alcohol, cocaine, amphetamine, and cannabis, all produce euphoria in postaddicts, and in many other individuals. That agents with such diversified actions can produce similar changes in mood is remarkable, especially when, in the case of postaddicts, the list may be supplemented by the addition of antihistaminics, large doses of acetylsalicylic acid, methyl alcohol or other alcohol-base anti-freeze, powdered nutmeg, and large quantities of coca-cola and coffee.

However, from a psychodynamic viewpoint it appears that at least 3 kinds of "euphoria" can be distinguished, and that these are produced by quite different mechanisms. The opiate-like drugs gratify directly such "primary" needs as hunger, fear of pain, and sexual (general erotic) urges. Alcohol, the barbiturates, cocaine and probably amphetamine and cannabis do not gratify "primary" needs directly; indeed, such needs may actually be enhanced, particularly by the use of alcohol or cocaine. These drugs, however, reduce inhibitions on psychodynamic mechanisms that have been developed in the individual for the gratification (in actuality or fantasy) of "secondary" needs such as narcissism, exhibitionism, sadism, masochism, etc. In this respect, the effects of alcohol, the barbiturates, cocaine, amphetamine, and cannabis differ sharply from those of the opiate-like drugs. However, when the dose of a drug in either class is large enough to impair the sensorium, another mechanism appears to be involved, which is similar to that underlying anosognosia. The patient with anosognosia denies obvious illness; the sub-

ject who is euphoric denies obvious, realistic sources of anxiety. In both instances, there is evidence of generalized impairment of brain function. It has been suggested that anosognosia represents a relatively crude defense mechanism that the individual with adequate brain function does not normally utilize (34). A similar explanation may be applicable to the analogous condition that is produced by drugs.

While mechanisms such as these tend to produce "euphoria," the development of such a state is also dependent on the situation that exists at the time when the drug is administered. The gratification of "primary" or "secondary" needs and the non-recognition of realistic sources of anxiety may be acceptable to the individual under one set of circumstances and not in another. Such effects, if acceptable to the individual, may result in euphoria; if unacceptable, dysphoria may ensue.

In postaddicts, dysphoria can be induced readily by administration of small doses of the diethylamide of lysergic acid, or large doses of mescaline, amphetamine, or N-allylnormorphine. It also occurs regularly in addicted persons during abstinence from opiates, the newer synthetic analgesics, barbiturates, and alcohol. In such cases, dysphoria may be characterized by diffuse anxiety or, more topically, in relation to disturbances of ideation. The psychodynamic mechanism of diffuse anxiety produced by such means is not clear, although it may be reasonably inferred that it is a reaction of the organism to dangerously severe stress. The more topical anxiety states that are observed under such conditions appear to be related to the significance, to the individual, of his disturbed thought content.

Conventionally it is postulated that "release" mechanisms are operating in such cases, and such a working concept has proved to be of some utility in clinical practice. However, the fact that various drugs that presumably impair repressive functions of the ego can produce quite different behavioral changes in the same individual suggests as an alternative explanation the possibility that, as a result of drug actions, patterns of behavior become "disorganized" instead of "released" and that such changes may be

"typical" only for particular conditions. Pending further investigation of this alternative hypothesis, the conventional "release" interpretation will be utilized in this paper to explain certain drug actions, although considerable revision of our concepts may be necessary at a later date.

While no consistent electroencephalographic pattern appears to be associated with euphoria when this state is induced by the drugs considered above, intense dysphoria is usually associated with reduction of alpha percentage and increase in low voltage fast activity(8). However, similar changes have been noted in subjects smoking marihuana cigarettes, the effects of which were definitely pleasurable(32). It appears, therefore, that these electroencephalographic changes are related not to euphoria or dysphoria, but to the intense arousal that may accompany either state. The fast dysrhythmia produced by intravenous injection of small doses of barbiturates is different in pattern from such arousal states, and may be associated with either euphoria or dysphoria (8).

Changes in the autonomic nervous system in euphoric and dysphoric states that are produced by drugs are variable. Parasympathetic dominance occurs after administration of euphoria-producing doses of the opiate-like drugs, and sympathetic dominance after euphoria-producing doses of amphetamine or cannabis. Miosis accompanies the dysphoria produced by N-allylnormorphine, and mydriasis that produced by mescaline. Peripheral block of either type of autonomic change by intravenous injection of tetraethyl ammonium chloride does not alter the subjective experiences produced by these agents(8).

#### IDEATION AND BEHAVIOR

In general, 2 types of altered ideation and behavior may be noted after administration of drugs: (1) those best understood in terms of the individual's motivations and past experiences, and (2) those that appear to be more stereotyped. The former are more strongly suggestive of "release" effects and "compensatory" reactions, consequent to impairment of repressive functions of the ego. The latter may, perhaps, also be ex-

plained in a similar manner if it is assumed that these experiences have universal symbolic meaning. However, in the present state of knowledge, it is of advantage to distinguish between the 2 types of change.

Although euphoria may be induced by opiates, barbiturates, alcohol, and cannabis, the changes in ideation may be quite different. After administration of opiates or the newer synthetic analgesics, postaddicts are usually pleasant, cooperative, even obsequious, and often prefer to be left alone to enjoy their reveries. In addition, intravenous injection of morphine is followed in a minute or two by a transient "thrill," which postaddicts describe as an experience akin to orgasm except that it is centered in the abdomen. Few detailed studies of ideation have been made in such subjects. However, from some evidence obtained with free association technique and dream analysis, it appears that in postaddicts these drugs promote fantasies that reflect gratification of "primary" needs, and reveal, but do not necessarily intensify, egocentricity, narcissism, and infantile dependence of such individuals (35). Rorschach studies in such subjects show that morphine reduces constriction and promotes fantasy and inner living(36). In postaddicts, the opiate drugs induce changes in behavior that vary considerably, from hastening to bed for the purpose of "going on the nod," to energetic execution of assigned or unassigned tasks. At least in a research setting, antisocial behavior of any sort has never been observed by the author. In patients with schizophrenia without previous history of drug addiction, single doses of opiate-like drugs produce little if any change in ideation and behavior. During morphine addiction, however, stereotyped rituals, peculiar mannerisms, combativeness, and self-destructiveness may be replaced by more socially acceptable behavior, though ideation appears to be altered but little(8).

In contrast to the effects of opiate-like drugs, moderately intoxicating doses of barbiturates usually produce slovenliness and indifference to responsibilities; some subjects become obstinate and negativistic(29). Intravenous injection of suitable doses of barbiturates is followed by an increase in verbal productivity far greater than that

achieved with the opiate-like drugs. Dramatic changes in ideation and behavior may be observed in psychoneurotic and psychotic subjects. In postaddicts, extremely regressive behavior patterns may be manifested during chronic barbiturate intoxication. Intoxicating doses of alcohol may produce bellicosity and destructive behavior in the same subjects who, after morphine, become more cooperative and tractable. As in chronic barbiturate intoxication, regressive behavior is a common feature of chronic alcoholism.

From a psychodynamic standpoint, changes in ideation and behavior appear to be effected through the same mechanisms that have been discussed in connection with the alterations in mood produced by these drugs, namely, reduction of conation and impairment of repression. The former is more strongly effected by the opiate-like drugs; the latter, by barbiturates and alcohol. Obviously, even after administration of comparable doses of these drugs, the net effects will vary with the individual, because of the relative strength of these functions. Rather similar mechanisms may be postulated to explain the differences in overt behavior that characterize the actions of these drugs. In studies on the effects of single doses of morphine on learned adaptive responses and experimental "neuroses" in cats, it was found that the more complex, recently learned adaptive responses ("neurotic" patterns were the most complex) were more easily disintegrated by the drug, and that disintegration and reintegration of such responses paralleled reduction and augmentation of motivation (appetite) (37). The same findings were noted in dogs; however, when the reduction of motivation (fear of pain) was nullified by increasing the intensity of the unconditional stimulus (electric shocks to a hindlimb), the response pattern to stress (discrimination of positive and negative auditory stimuli) varied in each animal, and in each case represented that behavior pattern that the animal exhibited most often over a period of 2 years, regardless of whether it was "normal" or "neurotic." The application of such findings to man has been discussed elsewhere (38). Differences in the neurophysiological actions of these drugs have already been considered in previous

sections. The pronounced depressant effect on repression that characterizes the barbiturates and alcohol may be related to the diffuse depressive effects of these agents on the nervous system. In the light of our present knowledge, however, it is difficult to relate the neurophysiological actions of these drugs to their effects on conation.

Chronic addiction to opiate-like drugs is associated with other changes in ideation and behavior. During morphine addiction, a biological need for the drug develops, which is at least in part independent of factors of symbolic significance (38). The drive to obtain morphine to satisfy this artificially induced need becomes paramount and displaces weaker motivations. More and more time is spent in bed, enjoying the gratification of this need resulting from the last dose of morphine, and anticipating the next (35). During abstinence following abrupt withdrawal of the opiate-like drugs, an intense though self-limited abstinence syndrome ensues, during which further alterations in ideation and behavior are observed. These are related almost entirely to obtaining gratification of the intensified need for the drug, by use of behavior patterns that are peculiar to the individual, and are in part related to the personality of the physician and to the environment in which treatment is carried out. With neurophysiological techniques it has been demonstrated that biologic dependence of the organism on morphine develops at spinal, diencephalic, and cortical levels of integration, and the processes involved appear to be in the nature of adaptive response to the selective depressant effects of the drug on the central nervous system (6). The pituitary-adrenal homeostatic mechanisms also appear to be involved, since blood eosinophile counts are sharply reduced during abstinence (39). In man, the purposive, individually determined features of the morphine abstinence syndrome may be abolished by frontal lobotomy, while the nonpurposive, stereotyped withdrawal signs remain relatively unchanged (40).

Chronic addiction to barbiturates is associated with changes in ideation and behavior similar to but more pronounced than those that follow administration of single doses of these drugs. During abstinence

after abrupt withdrawal of barbiturates, psychoses and convulsions often occur. Illusions, paranoid delusions, visual and auditory hallucinations are common (29). Usually, the content of such ideational changes is highly personal, and it may be inferred that they represent "release" of repressed material secondary to impairment of ego control. The convulsions are usually of the grand mal type, though bizarre "hysterical" patterns may be manifested. Some evidence exists that barbiturate withdrawal psychoses are more apt to occur in individuals whose responses on the Rorschach test show evidence of marked constriction (24). It has been suggested that individuals who have developed other defenses against anxiety, "neurotic" or otherwise, are less apt to exhibit marked disintegration of the personality under stress of abrupt withdrawal of barbiturates. The neurophysiological aspects of barbiturate addiction have been investigated only with electroencephalographic techniques (29). During addiction, the mixed fast and slow dysrhythmia characteristic of the "barbiturate effect" is usually found. After abrupt withdrawal of such drugs, diffuse slow activity and paroxysmal discharges are often seen. These may or may not be accompanied by psychoses or convulsions (8). The pituitary-adrenal homeostatic mechanisms appear not to be activated to any great degree in this syndrome (41).

Changes in ideation and behavior during alcohol addiction have not been studied in this laboratory. From data available, however, one gains a strong impression that the changes that occur during addiction and withdrawal of this drug are quite similar to those noted in the use of barbiturates. Certainly the role of withdrawal of alcohol in the production of delirium tremens must be reinvestigated, for reasons already indicated.

Single doses of cannabis, in the form of smoking marihuana cigarettes, or ingestion of pyrahexyl compound, tend to produce a flight of ideas, the content of which usually reflects the basic personality of the subject; occasionally delusions of a paranoid nature are precipitated. Silly behavior and giggling are commonly observed (32). Neurophysiological changes have already been described and cannot be related to the specific actions

of this drug on ideation and behavior. During chronic pyrahexyl compound intoxication, changes in ideation and behavior are observed that are quite similar to those that occur during chronic barbiturate intoxication. The electroencephalographic changes during chronic pyrahexyl compound intoxication, however, are characterized by progressive slowing, such as occurs during addiction to methadone. Abrupt withdrawal of pyrahexyl compound is not followed by a well-defined abstinence syndrome and the EEG returns to the control pattern (32).

In proper doses, mescaline, the diethylamide of lysergic acid, amphetamine, and N-allylnormorphine regularly produce marked alterations in ideation and behavior. The effects of mescaline and the diethylamide of lysergic acid are much the same in equivalent doses (8, 42). Occasionally, auditory hallucinations are produced, but usually vivid visual hallucinations are more striking. The content of such hallucinations is remarkably uniform, and consists of colored lights, geometric figures, and insects. However, in some instances, hallucinatory and delusional material of a more personal nature is marked. In one subject whose premedication responses on the Rorschach test showed disturbances in thinking and affect similar to those seen in patients with schizophrenia, administration of mescaline was followed by auditory hallucinations of voices talking through steam pipes, delusions of FBI agents hiding in the room, and peculiar mannerisms (8). After administration of cocaine, paranoid delusions with personal content are often seen. Similarly, paranoid delusions and destructive behavior may occur during chronic amphetamine intoxication. Large doses of N-allylnormorphine produce quite different changes in ideation and behavior (15). Illusions may occur, but usually postaddicts complain of irrepressible daydreaming, often of nightmarish quality. Although drowsy, they cannot sleep because of the disturbing content of these reveries. Sometimes these relate to past experiences that the subject had been successful in repressing before. One such individual developed a panic reaction after administration of the drug and explained that he could not help thinking about past experiences that he



was anxious to forget. Further elaboration could not be elicited, but it is known that this patient had once been charged with personal violence.

From a psychodynamic standpoint, at least the more highly personalized changes in ideation and behavior effected by these drugs may be attributed to "release" and "compensatory" mechanisms (*e.g.*, topically related anxiety and projection), consequent to impairment of ego control. The degree of impairment is related at least in part to dosage of these drugs and to the strength of defences in the individual. From a neurophysiological standpoint, sympathomimetic properties are common to mescaline, the diethylamide of lysergic acid, cocaine, and amphetamine. However, N-allylnormorphine apparently produces either sympathetic depression or parasympathetic excitation, since miosis and pseudoptosis (but not anhidrosis) are commonly observed after administration of this drug in man. Tremors, enhancement of tendon reflexes, and patellar or ankle clonus may occur after mescaline, the diethylamide of lysergic acid, amphetamine, or cocaine. Whether these represent "stimulant" actions, or are "release" phenomena consequent to depression of inhibitory mechanisms is not known. However, it appears to be unlikely that the effects of such drugs on mechanisms underlying such changes in neuromuscular function are closely related to those subserving changes in ideation and behavior, since clinically the 2 groups of effects may occur independently. The clinical effects of mescaline and N-allylnormorphine may be observed in the absence of EEG changes, but the converse is not true. Desynchronization of the EEG is usually accompanied by such clinical changes (arousal, anxiety, hallucinations, daydreams) as suggest concomitant increase in cortical activity. Synchronization of the EEG is usually associated with such clinical changes (relaxation, drowsiness) as suggest concomitant decrease in cortical activity(8).

Although this paper has been concerned primarily with the actions of drugs, certain inferences that have been made may be applied to other problems. It appears that the central problem in psychosis is not the pattern of the symptomatology but either the

failure of "repression" or the "disorganization" of behavior patterns. While thus far no drug has been found that reproduces such "functional" psychoses as schizophrenia in every detail, many features of this syndrome can be produced in the laboratory. The use of such pharmacologic agents, combined with procedures that include the study of individual reactions to stresses presumed to be etiologic in the genesis of the "functional" psychoses, may prove to be of great value in the further development of experimental psychiatry.

### CONCLUSIONS

In this paper, an attempt has been made to examine critically what is known concerning the mechanisms through which drugs modify personality function, in terms of subjective experience, overt performance, and neurophysiology. A study of available data and the techniques by which they have been acquired leads to several important general conclusions: (1) Not only is there a considerable degree of incommensurability between "subjective" and "objective" data, but also between data in either category that are acquired with different techniques. (2) The "organism" can never be separated from its "environment," and the 2 can be described only in terms of mutual interaction. (3) A "stimulus" cannot be defined in terms of its own properties alone, since its capacity to evoke responses is determined in part by antecedent events, and by particular experimental arrangements.

These conclusions can be reconciled with a monistic theory of "mind" and "body" (43). However, it may be questioned whether concepts such as "psyche" and "soma," or their equivalents and derivatives, have not outlived their usefulness, and impede progress in psychiatry more than they foster it. An approach more consistent with the facts, which appears to be more useful in research, is one that may be called "instrumental relativity." Its salient features may be stated as follows. In psychiatry, we are concerned with the prediction and alteration of changes in the organism-environment complex at the symbolic level of functional integration. Such changes may be described in terms of various parameters,

such as those of language, performance, physics, and chemistry. Each group of parameters constitutes a "frame of reference" for the measurements that are made. The data so acquired may be "explained" in terms of operational constructs ("properties," "functions," "mechanisms," "theories," "laws") that are peculiar to each frame of reference. However, as the data discussed in this paper indicate, any "mechanism" (or other operational construct) in a given frame of reference can be dissociated from all other "mechanisms" in any other frame of reference, and furthermore, the rates of change of operational constructs may vary considerably in different frames of reference. It follows therefore that perfect correlations can never be made between the data acquired with one technique and those with another, although they may be related. This is true even when, because of semantic confusion, we use the same word to describe different operational constructs—*e.g.*, stimulation, depression, inhibition, facilitation, stress, homeostasis, energy, level of integration, etc. Also, cause-and-effect relationships between successive changes in the organism-environment complex can be inferred with confidence only with respect to such changes as are described in a given frame of reference. The use of terms such as psychosomatic in a cause-effect sense is semantically unjustified and is fraught with serious sources of error.

Hence there is little justification for the despair of the neurophysiologist who felt that, as far as "mind" was concerned, the head might just as well be stuffed with cotton wool (44). Although complete equivalence of what are currently termed "mental" and "material" mechanisms can never be attained, the goal of psychiatric research must be the elucidation of mechanisms, or combinations of mechanisms, in multiple frames of reference at the symbolic level of functional integration, between which correlations can be demonstrated in increasingly high degrees of probability. We must be prepared to adopt new techniques for acquiring data, and to revise our operational constructs, including dynamic formulations and classifications of psychiatric disorders, if by so doing prediction and treatment are facilitated. Such flexibility in research at

nonsymbolic levels has been the foundation for progress in other medical fields, and promises also to have great value for psychiatry.

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## RECORDING THE FINDINGS OF THE PSYCHOLOGICAL EXAMINATION ("MENTAL STATUS")<sup>1</sup>

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An examiner always has three tasks. The first is to collect observations regarding the thing examined in some systematic way that will insure orderliness on the one hand, and thoroughness on the other. The second task is to organize these data into a synthetic whole, thinking through the bearing of each bit of information on the total picture. One cannot go very far in examining a complicated object or phenomenon as a whole; we have to examine its parts, but having done so we must combine all our observations into an integrated total description. The third task is that of recording both the part descriptions and the synthesis. Enough detail about part descriptions must be recorded to justify the synthetic summary; on the other hand, such an excess of detail as to obscure the sharp features of the total picture must be avoided.

The results of an investigation of the psychological functioning of a patient may be recorded in many ways. Different psychiatric hospitals and clinics have evolved their own formulae or systems; psychologists have evolved special forms for reporting test findings, and these, too, differ from place to place. In some clinics no formal psychological examination<sup>2</sup> report is prepared, a brief, impressionistic description sufficing. Indeed, some colleagues object on principle to any

systematic recording of psychological data. Medical science faced similar objections when it was first proposed to percuss the outlines of the heart and record its dimensions. Said the older physicians, "Fie on this measuring of the heart with a centimeter rule! It gives a better picture to say merely that the man has a moderately enlarged heart." This does give a definite impression, but it does not give a completely accurate description.

One who examines the psychological functioning of a patient, however, addresses himself to a task very different from that of the physical examiner. He is not examining a substance, a structure, or a thing so much as a process, a function. Furthermore, the human personality in all its manifestations—normal and psychopathological—is so complex a set of processes that we would be hopelessly overwhelmed were we not at every step to introduce meaning or "structure" into the initially unorganized raw observations. It is impossible, therefore, in the psychological examination to record raw data only. A psychological examination report is made up of a combination of raw data obtained by the examiner, inferences and conclusions from those data, and inferences and conclusions drawn from other data reported either by the patient or by others who have observed him.

Therefore, some schema for organizing and recording the various kinds of data is necessary, in order to assist the examiner in distinguishing facts from inferences, and inferences from speculations. The theory of personality functioning, either explicit or implicit in such an outline, will facilitate the organization of data in meaningful terms.

For many years psychological data were organized and recorded in terms of faculty psychology. This method of making "mental status" examinations was traditionally rooted in the descriptive psychiatry of Kraepelin. Its focus was not the patient, but the patient's "mind," which, for practical purposes of examination, was divided into mental faculties, and the patient's degree of de-

<sup>1</sup> Read at the 107th annual meeting of The American Psychiatric Association, Cincinnati, Ohio, May 7-11, 1951. To be published in a *Manual of Psychiatric Case Study* by Grune & Stratton, New York, in February, 1952.

<sup>2</sup> I use the term "psychological examination" to refer to what has traditionally been called the "mental examination" or "report of mental status." I am aware that *psychological examination* in this sense may be confused with the "psychological testing" as developed by clinical psychologists, but I am willing to run the risk of this confusion.

For one thing, these older designations are not appropriately coordinate with "physical examination." The use of the word "mental" implies an untenable distinction between body and mind. If we use the expression "mental status," we should use the parallel expression "bodily status." Status in this sense is determined by examination, by physical examination, by psychological examination, by other examinations.

rangement was described in terms of deviation from hypothetically normal faculties of attention, comprehension, perception, etc.

Early in the twentieth century, Adolf Meyer introduced Kraepelinian methods of psychiatric description and syndrome designation into American medicine. As time went on, Meyer considerably changed his point of view and developed a method of examination based upon a broader concept, which he called "psychobiology." Despite its obvious advance over Kraepelinian concepts, this approach, curiously enough, was never fully appreciated or extensively used in this country. Just about the time that Adolf Meyer was introducing the word "psychobiology" to refer to a broad concept, Freud's disciples were introducing the word "psychoanalysis" to refer primarily to a method of investigation and treatment, secondarily to a theory of personality functioning. It was inevitable that these two concepts—psychobiology and psychoanalysis—although actually reciprocal and synergistic should seem to be in opposition. Some doctors were attracted by the new concept of totality and some by the fertile yield of a new treatment method. Human nature being what it is, the two groups imagined themselves to be in conflict. Meyer himself repeatedly declared that there was no such conflict, but he always had reluctances about making a whole-hearted, unequivocal commitment to psychoanalytic methods of personality study. Freud, on the other hand, was never concerned with total personality concepts and ignored Meyer and most other psychiatrists.

In the passing of the years, the pseudo-conflict has been virtually resolved. However they may talk, most psychiatrists *think* in terms of both psychobiology and psychoanalysis although the expression "total personality" has largely replaced the term "psychobiology."

Nevertheless, it is a strange fact that neither psychobiological nor psychoanalytic theory have had very much effect on the form of examination protocols used in large psychiatric hospitals and clinics. The standard forms for recording the so-called mental status still used in many hospitals and taught to many students show little signs of having been influenced by the developments in psychiatry since Kraepelin.

The outline proposed here attempts to bridge this gap by utilizing concepts of psychoanalysis, psychobiology, and other holistic theories of personality functioning. Since this is a manual of practical procedure, it would be inappropriate to trace all the theoretical sources from which the structure of the outline has been derived. This I intend to do in a later book. In order to avoid confusing the reader, I have confined myself to what I consider the minimum of theoretical explanation necessary for understanding the various parts of the outline and their sequences.

The form that follows is an outline for the organization and recording of clinical psychological data. It suggests the special fields of inquiry, and the types of clinical data commonly noted. It is not to be used as a method of *making* an examination (although it may very well provide a conceptual framework for method), nor is it intended to be used as a questionnaire. For example, under *Perception, normal features*, one should not record "alertness, yes; accuracy, no." However, in determining and recording the patient's perceptual functioning, alertness will naturally be considered; and, if it contrasts with his inaccuracy of perception, one might record: "The patient is alert to every move of the examiner, whom he consistently misidentifies as a nurse." This notation, to be sure, brings in an "abnormality," but there is no rule against combining such observations. They are separately classified in the outline, but only for the sake of logical clarity in reporting on a particular patient. It might well make for *unclearity* to segregate data arbitrarily under the various subheadings. If the examiner uses the main headings (designated by Roman numerals and capital letters) as his *primary* guide, and does not follow slavishly each subordinate ordering, his ability to present a clear and integrated picture will be greatly facilitated.

In all instances, the record should make clear to the reader the sources of data and conclusions reported. The specific documentation of sources not only gives the reader some idea of the accuracy of the record, but may also call his attention to some new and significant information about the patient. For instance, when one compares

the observations of a relative, a pastor, and an employer, it may become apparent that the patient presents himself very differently to different people. In regard to each observation reported, the examiner should ask himself: Was this observed repeatedly, or only once? By a prejudiced observer, or by one who is disinterested? And so on.

Finally, it is always desirable to distinguish clearly between fact, documented inference, and logical conjecture. The record is a combination of raw data, data reported by other workers associated in the care of the patient, historical data furnished by the patient and his relatives, and statements that appear to be factual but are actually inferences drawn from raw data. A report that confuses hunches with observations is of little scientific value, no matter how well it is written or how reliable the basic factual material may be. On the other hand, a report cluttered with unnecessary raw data may be very confusing. To say that the hands are bluish in color is reporting a raw datum; to say that they are cyanotic is an interpretation, but one which is meaningful (the hands might have been tinted with bluing). To say that a patient is of below-average intelligence is an inference that need not, as a rule, be documented by the psychiatrist. But to say that a patient has delusions does require documentation, because of the highly individualized nature of their content and expression.

If an inference or conclusion is regarded as equivocal, the conflicting bits of evidence may be cited. In any event, the doubt should be mentioned, just as, in a report of physical examination, an evanescent or indistinctly audible heart murmur is so described.

#### OUTLINE FOR ORGANIZING AND RECORDING DATA<sup>3</sup>

##### I. GROSS IDENTIFICATION (General Observations)

*A. Circumstances of the Examination.*—State where, why, when, how, and by whom the examination was made. If, for example, the examination was of necessity limited to a 30-minute observation of the patient, or to a single Rorschach testing interview, say so. If it was more complete, indi-

cate how complete. This is the place to indicate the level of confidence ascribable to the report.

*B. Visualization.*—Describe the patient impressionistically in order to orient the reader—mentioning such things as appearance, posture, clothing, and voice, including accessibility and general reaction to examination. Try to create a visual picture in everyday terms to which the reader or listener may attach the technical material to follow.

*C. Quotation.*—Give a brief quotation that expresses the patient's problem and/or his attitude toward it in his own words.

## II. PART PROCESSES

### A. Perception

1. Normal features: alertness, accuracy, direction of attention (inward or outward).
2. Deficiencies: sensory (anaesthesia, anosmia, amaurosis, etc.); attention (distractibility, dullness, cloudiness); confusion, disorientation (time, place, person).
3. Excesses and distortions: sensory (hyperaesthesia); attention (hyper-alertness); false perceptions, illusions, hallucinations, disorders of body image, estrangement, depersonalization.

### B. Intellection (cognitive functions)

#### 1. Level and range

- a. Normal features: intelligence, memory (remote and immediate), capacity for abstract thinking, information and knowledge.
- b. Deficiencies: stupidity, amnesia, hypomnesia, concretism.
- c. Excesses: hyperintelligence, hypermnnesia, syncretism.
- d. Distortions: disorders of judgment ("common sense"). (Do not include delusions here.)

#### 2. Thought processes

- a. Normal features: tempo (rapidity of association and ideas), rhythm (spontaneous, hesitant, halting), organization (constricted, coherent, relevant; relation to goal).
- b. Deficiencies: retardation, blocking, incoherence, irrelevance.
- c. Excesses: press of associations, excessive intellectualizing, garrulousness, circumstantiality, flight of ideas.
- d. Distortions: perseveration, condensation, neologisms, word salad, echolalia and stereotypy, autistic logic.

<sup>3</sup> This schema for psychological examination reporting was developed by Helen Sargent, Ph.D., Edward G. Feldman, M.D., Martin Mayman, and Karl A. Menninger, M.D.

## 3. Thought content

- a. Normal features: prominent preoccupations, phantasies, and dreams.
- b. Deficiencies: meagerness, impoverishment.
- c. Excesses and distortions: obsessions, fixed ideas, delusions.

C. *Emotion* (affective processes)

1. Normal features: intensity, depth and modulation of emotional response; quality of prevailing mood (cheerfulness, somberness, irritability, etc.)
2. Deficiencies: inertia, stupor, paralysis, apathy, coldness.
3. Excesses: tendency to prevalent or oscillating elation, rage, depression, panic, worry, fear, apprehensiveness, suspiciousness.
4. Inappropriateness: disharmony between affective response and its provocation, incongruity of feeling and action, dissimulation.

D. *Action* (expressive behavior)

1. Normal features: energy level, vigor, persistence, constructiveness.
2. Deficiencies: inertia, stupor, paralysis, inability to initiate action, inhibition, rigidity.
3. Excesses: restlessness, hyperkinesis, agitation, assaultiveness, impulsiveness, destructiveness.
4. Inappropriateness: compulsions, tics, rituals, mannerisms, peculiar habits (eating, smoking, excretory, sexual, others), stereotypy, catalepsy, posturing.

## III. INTEGRATED FUNCTIONING (Relations to integrative opportunities)

A. *Relations to self*

1. Self-concept: What does the patient consider to be his "real" self? Does he feel he is being "himself"? What are the important activities and values that comprise the structure of the self? On what models has the patient based his ego-identity? (See Erikson.) How much stability is provided by the ego-identity?
2. Ego-ideal: Goals, level of aspiration, chief identification figures. Ethical standards and how justified. Degree to which ego-ideal has supplanted superego.
3. Superego: Strength, actual and relative. Predominant model (if known; e.g., father, aunt, brother). Characteristic type of placation required (penance or penitence, mourning, physical

suffering, gestures, deprivation, bribery).

B. *Relations to others*

1. Quantitative aspects: range, diversity, intensity, constancy, flexibility, etc.
2. Qualitative aspects: selectivity (type of object choice), prevalent modality (parasitic, predatory, possessive, patronizing, domineering, cruel, cooperative, negativistic, exploiting, masochistic, protective, tender, considerate), overt sexual patterns.
3. Love-hate pattern: dominance of which, and in which relationships; ambivalence manifestations (evidence of contrary unconscious attitude)
4. Transference paradigm: In what characteristic way does the patient relate himself to the examiner over and beyond the reality determinants?

C. *Relations to things* (sublimations)

1. Attitude toward possessions—his own and those of others.
2. Work patterns: interest, intensity, variety, consistency, skill, efficiency, satisfaction.
3. Play patterns: interest, intensity, variety, consistency, skill, efficiency, satisfaction, sportsmanship.
4. Philosophic, social, and religious interests and values: form, scope, intensity, satisfaction.

## IV. REACTIONS TO DISINTEGRATIVE THREAT (degrees of dysfunction)

- A. *Normal reactions to mild threat*: simple tension-relieving devices, other than sublimation, ordinarily used (humor, tears, fantasy, dreams, acting to alter, proud self-control, passive acceptance, activity, overeating, excretory acceleration, *plus* increased integrative effort)

B. *Emergency reactions*

## 1. First order (alarm and mobilization)

Hyperrepression, plus

Hypersuppression (determined effort at "self-control")

Hyperalertness (up to and including "jitteriness," "nervousness," insomnia)

Hyperirritability (touchiness, stubbornness, irascibility, brief rage attacks)

Hyperemotionalism (oscillating depression, fearfulness, anger, euphoria, etc.)

Hyperintellection (purposeful to pointless preoccupation, worry, loquacity)



Hypercompensation (new reaction formations, self-reproach, identification with aggressor, fantasy elaboration, etc.)

Hyperkinesis (inefficient or pointless overactivity, restlessness, etc.)

Hyperwithdrawal (avoidance, denial, contact severance)

Hyperlability of sympathetic system (minor somatic dysfunction such as tremor, flushing, enuresis, etc.)

2. Second Order (partial detachment and attempted compensation)

Dissociation—fainting, isolation, narcolepsy, amnesia, fugues, depersonalization

Displacement (substituted objects)—phobias and counterphobic phenomena, obsessions, strong aversions, projection, provocative transillency, persistent unmanageableness, simulation (conscious or unconscious)

Substitution (substituted modalities and symbols)—compulsions, rituals, "kleptomania," fire-setting, etc., perverse sexual objects or modalities.

Sacrifice—self-abasement and self-imposed restriction, asceticism; body mutilation (intentional, "accidental," surgical); intoxication or narcotization; somatization in fantasy, sensation, or function (list symptoms); exploitation of somatic affection.

3. Third Order (transitory ego rupture, with prompt restoration; episodic phenomena)

Panic attacks

Catastrophic demoralization

Transitory dereistic excitement

Assaultive violence—homicidal, suicidal, sexual

Convulsions

4. Fourth Order (persistent ego rupture or exhaustion, with marked detachment)

Excitement with erratic, disorganized behavior

Hyperthymia with stupor, agitation, retardation, delusion formation

Autism with flaccid, incoherent, silly, bizarre reactions

Apathy (extreme) with (usually) mutism and/or hallucinations

Delusional preoccupation with one or several themes, usually persecutory, with defensiveness, suspiciousness, grandiosity, etc.

Confusion: bewildered, uncertain, forgetful disorientation.

5. Fifth Order (complete ego failure)

Continuous, uncontrolled violence ending in physical exhaustion and death.

? Some other forms of dying.

"Aphanisis" (paralysis of mental functioning) (Jones).

C. Aspects of the present disequilibrium

1. Sequential chain

2. Anxiety feelings

3. Insight

4. Facade

5. Intact assets for therapeutic exploitation

V. DIAGNOSTIC SUMMARY

A. Principal features of the examinational findings

B. Diagnostic impression (differential)

C. Prognostic indications

FURTHER EXPLANATION OF THE OUTLINE

SECTION I.—IDENTIFICATION

Even Kraepelin's greatest contribution, that of vivid description, is lacking in many present-day records. We submit that the beginning of a report of psychological examination should stem from this Kraepelinian heritage. Readers or listeners should become quickly oriented to a *gestalt* picture of the patient, the details of whose psychological functioning are next to be submitted. An impressionistic description of the patient as seen by the examiner, written with as few technical terms and stereotyped expressions as possible, should introduce the report of findings. Kraepelin's gift for vivid description should be emulated so that a word picture of the patient is created with such clarity that a colleague, having read or heard it, could recognize the patient in the course of passing through the ward.

SECTION II.—PART PROCESSES

*Perception, Intellection, Emotion, Behavior*

Having submitted a visualization or impressionistic picture of the patient, the examiner records a survey of the classical functions of perception, thinking, feeling and action

(behavior). The arrangement of observations under these 4 topics should give a logical and coherent picture of (1) how the patient perceives and tests reality, (2) how he organizes his experiences in a way that makes sense to him (or how he fails to do so), and (3) how he reacts inwardly and outwardly to his experiences and their implications for him. These functions may be described with respect to their excessiveness, deficiency, aberrancy, or correspondence to a hypothetical norm.

A few comments may be helpful here for the beginner. It should be remembered that these observations with respect to part processes should provide a solid foundation of empirical observation and description for the more inferential conclusions to be recorded in subsequent sections. It is, therefore, not sufficient merely to note, for example, that the patient "has auditory hallucinations," "shows poor judgment," "exhibits inappropriate affect," or "is hyperactive on the ward." Such notations have some meaning, of course, but are not concrete enough or specific for the particular patient under observation. If, instead, it is recorded that "The patient interrupted the examiner several times during the interview to swear violently in response to voices that he claimed to hear calling his mother a whore," we not only know that the patient is probably hallucinated, but we know something about the function of these hallucinations in his total psychological experience.

In reporting on *intellection*, the examiner should avoid cluttering his report with details of raw data. We are not concerned here with how many serial sevens the patient is able to subtract, or with the circumstantial details of how he performed in tests designed to assess conceptual thinking. On the other hand, empty generalities like "The patient's thinking is concretistic" or "He shows poor judgment" should be documented by illustrations from the patient's speech or behavior.

In describing the patient's *emotion*, one should seek to penetrate the superficial aspects of emotional responses, and to report what the patient actually feels. Emotional processes are the most difficult ones to assess, because the subject may deliberately or un-

wittingly control or alter their outward manifestation by means of self-restraint, inhibition, or exaggeration. The examiner should not only describe the outward manifestations of emotion, but state his inferences concerning the patient's inner feelings and the observations from which these inferences are drawn. For instance, after describing a patient's mild euphoria, he might note: "The patient jokingly brushed aside the examiner's questions as to whether she ever felt blue, and seemed to want to create the impression that she is perfectly satisfied with the situation in which she finds herself. Yet the very intensity and consistency of her striving, together with the rather wooden expression of her face during the infrequent lapses when she was not striving to be gay and animated, gave the examiner the impression that feelings of depression were not very far below the surface."

The report of psychological examination will contain not only the examiner's observations, but also the observations and conclusions of others who have been associated with the patient. This is particularly true in the record of the patient's behavior or *action*, since the examiner presumably witnesses only a small portion of the patient's day. The reports of nurses, aides, and adjunctive therapists should be fully utilized. Nor is it sufficient to note, merely, that the patient is "active in OT." Descriptive details of the spontaneity, drive, persistence, and quality of his efforts should be stated.

### SECTION III.—INTEGRATED FUNCTIONING

The third section of our schema deals with the *integrative relationships* established during the patient's life that define his characteristic patterns of adjustment. Since a person's relationships to other people and to things are largely determined by the roles he has evolved for himself in these relationships, we must first describe the complex of internalized attitudes and values that determines his self-identity. These data can be organized systematically under 3 topics: self-concept, ego-ideal, and superego.

As used here, *self-concept* embraces more than the patient's conscious evaluation of himself (*i.e.*, what he tells the examiner about the kind of person he thinks he is).

It also includes more deeply hidden attitudes, which the patient may acknowledge if he is directly questioned about them, or may even deny vehemently, apparently having no knowledge of them. These preconscious and unconscious evaluations of self are apt to be elicited by the examiner directly in proportion to his skill and experience. But in obtaining this information, even the skillful examiner will have to go largely by his inferences from clues in the patient's behavior and speech. Often the examiner's insight into these more hidden attitudes will be sharpened if he attempts to complete the phrase, "This patient behaves as if . . ." Thus, the man who bends over backward to impress us with his humility may reveal in many subtle ways his underlying arrogance. A person's self-concept consists of *more* than one set of attitudes—often contradictory, some masked by others, all of which should be described.

The *ego-ideal* consists of that complex of conscious attitudes, evaluations, motivations, ideals, and hopes that can be formulated in answer to the question: What kind of a person does the patient *aspire* to be? The examiner should note the feasibility of the *ego-ideal* (*i.e.*, is there a logical and reasonable possibility that the patient may approach it?), the motivating power of the *ego-ideal* (does he strive actively toward it in his daily activities or does he only daydream about it?) and discrepancies between *ego-ideal* and everyday behavior. (If the discrepancy is great, how does the patient explain it?)

The *superego* comprises those unconscious determinants of prohibitions and obligations that are rooted in infantile identifications. The Catholic theologian and psychologist, Father Noel Mailloux,<sup>4</sup> has suggested the apt term "archaic conscience," to distinguish the *superego* from conscience in the ordinary sense, which is apt to be confused with the *ego-ideal*. In reporting data about *superego* functioning, the examiner must be careful lest he get lost in psychodynamic speculations that have no place in a report of *examination*. Inferences should be confined as closely as possible to the available evidence.

<sup>4</sup> In an address before the American Psychiatric and American Psychoanalytic Associations, in Washington, May 17, 1948.

Since evidence about the unconscious (*superego*) is likely to be meagre, the recorded data will probably be brief, and justifiably so.

No one lives unto himself alone, however, and it is most important to indicate, therefore, what kinds of relations have been established by the patient with the persons about him. For some psychiatrists this has become the all-embracing focus of psychological investigation. (It *is* important, but it isn't *everything*.) How much of the patient's instinctual energies are invested in persons as compared with those invested in himself, or in inanimate objects? How consistent, how flexible, how selective is this investment? What form does the investment take—is it dominated by constructive or by destructive impulses; *i.e.*, by love or by hate? And what form of love, or of hate, is manifest; *i.e.*, precisely how are the energies expressed?

These are the minimal questions that should be answered in connection with the patient's interpersonal relationships. Their general pattern is frequently reflected in the relationship established with the examiner over and beyond reality requirements. For example, one patient will be more anxious to please the examiner than to conform to truth. Another patient will make innumerable requests and demands and show a readiness to take umbrage if these are ignored. The patterning of his attitudes toward the examiner is often found to be typical of his relationship to others. Entering into these relationships will be some aspects of the self-concept that have been described earlier. The recorder should point up these connections when he observes them.

How the patient relates himself to inanimate objects is also important. What does he prize most—his wife, his money, his car, his lands, his books, or his marbles? What is his attitude toward the possessions of others, *i.e.*, how sharp is his distinction between mine and thine?

His ability to direct instinctual energy into constructive modifications of reality in what we call "work" is significant; the examiner should record the patient's attitude toward work, his satisfactions in it, his skill, his efficiency. Similarly, investments of energy in

play should be recorded—how much, how skillfully, in what forms, and under what circumstances, and with what degree of enjoyment?

In his famous book, *What Men Live By*, Richard Cabot listed work, play, love, and worship as the pillars of life adjustment. Under the last of these can be envisaged the attitude of the patient toward the intangibles of life—his value system, his philosophical attitudes and formulations. How does he think of himself in relation to the human race, the problem of evil, misfortune, death, race prejudice, religious beliefs? To what extent does he formulate a conception of God?

#### SECTION IV.—REACTIONS TO DISINTEGRATIVE THREAT

##### *A. & B. Defenses*

If the characteristic patterns of integrative adjustment (recorded in Section III of our schema) are suddenly threatened with disruption (*e.g.*, because of the death of a spouse, a crippling accident, a threat of injury, the loss of a job), the internal tension of the system as perceived by the ego may mount painfully high because of the activation of socially unacceptable impulses. Emergency devices are then called upon to reduce this state of psychological hypertension, or at least to prevent it from increasing even further, and threatening the integrity of the system. We know, empirically, what some of these tension-relieving devices are; in their lesser forms they are everyday mannerisms, substitutions, and fictions. In more urgent situations they appear as symptoms.

The redistribution of energies made possible by the development of symptoms may enable the individual to re-establish or to develop new integrative relationships of a deviant (compromise) kind that provide a measure of stability and comfort. On the other hand, we know that symptoms, while adaptive in the sense that they *discharge* tensions perceived as threatening to the integrity of the system, at the same time tend to *increase* tensions because of their disruptive effect on integrative relationships. Hence an equilibrium may not be achieved, and new and more severe symptoms may be resorted

to before a semi-stable equilibrium is achieved.<sup>5</sup>

This chain-reaction or spiraling of symptom-formation is depicted in Section IV of our outline as a hierarchical series of tension-relieving devices, each succeeding order representing a higher degree or "order" of ego distress and a more strenuous effort at preventing the ultimate catastrophe of disintegration.

Any of the dysfunctions described in Section IV B of our outline may occur as a primary reaction or may be one of the links in a chain of reactions, which proceeds until an equilibrium is established. But ultimately, if a semi-stable, semi-unstable equilibrium can be achieved, which, while not at a comfortable level, is less painful than the one which threatened, disintegration of the personality will have been forestalled. For example, a convulsion or homosexual affair might be followed by a depression, and the depression by alcoholism. One should not be tempted to fall in with the patient's oversimplified explanation that he was depressed (merely) "because" of the sexual episode, or got drunk (merely) "because" he was depressed. Such sophistry is correct only in this sense—that the first tension-relieving efforts were not satisfactory or sufficient. Others were necessary, made more necessary and perhaps conditioned in selection by the first ones.

In recording the reactions of his patient to the threat of disintegration, the examiner will be helped by noting the order into which the majority of them fall. He should proceed from details to generalities; *e.g.*, he may note the presence of phobias and obsessions, characteristic manifestations of the general tension-relieving device ("defense measure") of *displacement*, which is, in turn, one of second order severity (which we specify as characterized by partial reality detachment with attempted compensatory repair). Or he may describe the syndrome of erratic, disorganized behavior with great excitement, indicating it to be of the fourth order of

<sup>5</sup> This represents the development of the acute phase of illness. The equilibrium will again be disturbed by the recovery process, in a reverse direction, and "resistance" to getting well is related to the inertia principle involved.

ego disorganization (rupture or exhaustion). Again, he may have to record the presence of some first, second, and third order symptoms, and indicate which ones of these predominate, and which are tending to recede.

The record in this part of the examination should provide an appraisal of the lengths to which the ego has been forced to go in its conservation efforts. Rather than indicating merely that the patient is "neurotic" or "psychotic," the report should show how much "neurosis" or "psychosis" is present. (I personally prefer to avoid these terms.)

#### *C. Sequence, Anxiety, Insight, Facade, Assets*

Ultimately, in the individuals we examine as patients, the doctor is approached (or brought in) as a special, artifactual tension-relieving agent. The examination itself often furthers this function. We can assume that this new step, of itself, confirms our assumption that the equilibrium so far achieved is an unstable one, and is at a level too low for effective living, or too high for endurance. What has been so far recorded are the various devices that have been and are being used by the patient, spontaneously, to minimize tension. What do we need to know, further?

There are certain aspects of the picture of disorganization or maladjustment that should be specifically mentioned because of their clinical importance. One of these is the *sequence of symptoms* or development of the illness as described above. The present picture should be related to preceding phases of maladjustment, which have probably been described in the history. Symptoms previously characteristic of the patient's illness, but no longer apparent at the time of the examination, should be accounted for.

It is important to record signs of *anxiety* felt in spite of the symptoms, and to estimate how much may be manifested physiologically, whether or not the patient is aware of it. The examiner should note whether such feelings or manifestations are constant or episodic, intensely painful or only constantly nagging.

*Insight*, its quality and depth, is another aspect of the illness that is not definitely embraced in the foregoing. Insight is variously defined, but it can be thought of simply as the concept the patient has of his own ill-

ness, or, more accurately, how the patient's conception of his illness compares to that of the examiner. The questions to ask oneself are: How does the patient regard his illness? Does he rationalize it? Does he regard his abnormality as shameful? As more or less severe than it actually is? As curable? Does the patient recognize his own responsibility in the development of his illness, or does he regard himself solely as a victim? Does he expect to undergo treatment or to undertake it? Or does he reject treatment as unnecessary or as futile?

The fourth aspect of the illness to consider is the extent to which the patient attempts to conceal his disability from the world by a *facade*. Does he impress the casual observer as less handicapped than he really is, or as more so? Is he skillful in disguising conspicuous evidence of his pain or of his devices for minimizing pain, or is he skillful in dramatizing these for secondary gains?

Finally, in every case the examiner should be alert to the elements in the patient's psychological structure that can be considered *assets for therapeutic exploitation*. There are potentialities in every patient that tend to remain latent until given the proper stimulation or opportunity for growth. The therapeutic program depends in part upon the recognition of this principle, and of these assets. A high intelligence, a strong super-ego, a high level of aspiration, a degree of manual skill, an interest in artistic creativity, capacity for self-examination or for quick social integration—these are typical of the elements upon which a therapeutic program can be built.

#### SECTION V.—DIAGNOSTIC SUMMARY

The psychological examination record should end with a summary. It will contain a condensed account of the significant psychological data—both intact functions capable of use as therapeutic building stones, and psychopathological manifestations. The summary should incorporate the findings recorded in the 4 sections preceding. This can be done in several ways, depending upon the nature of the case, but, bearing in mind that the summary will be used as a kind of symbol or miniature map of the case abstract, the examiner should try to indicate in a few



words what he considers to be characteristic of the patient's psychological functioning.

The summary should conclude with a tentative diagnostic term or phrase, if this is possible. It might seem improper to do so since the psychological examination is only one of numerous examinations given the patient, on the totality of which a scientific diagnosis is based. However, empirically we have become familiar with certain characteristic psychological pictures for which there are generally accepted syndrome designations. If the findings of the psychological examination are those frequently seen in delirium or in Huntington's chorea or in schizophrenia, it is proper to conclude the report with a statement that the sum total of the data impresses the examiner as a delirious or Huntingtonian or schizophrenic syndrome. This is not a disease diagnosis, but

merely the designation of a psychological picture. It is not necessary that it be a single unitary designation; indeed, it is better that a differential diagnostic discussion be utilized, indicating in what respects the picture suggests the existence of (for example) organic brain disease and in what way it suggests some other picture.

*Prognostic Indications.*—In psychiatric illness the modifiability of the illness, its tendency to progress or regress, is usually determined by comparative psychological examinations. But it is also determined empirically in some instances by the presence or absence of certain symptoms or symptom trends. If the examiner has an impression about the course of psychological disorganization—whether it is likely to get worse or whether there is some indication of its arrest—he should state his opinion here, briefly.

## NARCOSYNTHESIS IMMEDIATELY FOLLOWING INSULIN SHOCK

### FIVE-YEAR FOLLOW UP AND SUPPLEMENTARY REPORT<sup>1</sup>

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In view of the fact that the etiology of many of the major mental disorders is still to a great extent unknown, it is not surprising that the treatment methods for these conditions should include both psychological and physiological means. Among the psychological methods that have found a definite place in our therapeutic armamentarium are individual and group psychotherapy, psychoanalysis, play therapy, and psychodrama, to name a few. Among the physiological procedures are the various shock therapies, psychosurgery, CO<sub>2</sub> treatment, and the treatment with endocrine preparations, sodium pentothal, sodium amytal, etc.

As concerns the use of sodium amytal in psychiatric disorders, ever since Lindemann (1) in 1932 demonstrated that the pre-narcotic dose (3 to 7 grs.) of sodium amytal when injected slowly intravenously was found to alter mental states in normal individuals and in mental patients, intensive clinical research has been carried on with this and other similar-acting drugs in the hope of finding effective pharmaceutical agents for the treatment of mental disorders.

After the first wave of enthusiasm had subsided, it was found that both sodium pentothal and sodium amytal were among the most important pharmaceutical weapons in dealing with mental disorders, and their place has now been definitely recognized. After lengthy experimental and clinical investigations, several methods for the application of sodium amytal in psychiatry have been outlined; broadly speaking, they fall into 3 main categories: the narcodiagnostic, the narco-prognostic, and the narcotherapeutic.

As a diagnostic means the sodium amytal technique was first used by Bleckwenn (2), to differentiate neuroses and functional psychoses from organic psychoses. This author claimed that less of the drug was required to

produce stimulating and narcotic effects in neuroses and functional psychoses than in the organic psychoses. This view later became a matter of controversy and its validity is widely questioned at present. More important and definitely established, however, is the diagnostic use of the sodium amytal interview to differentiate between neuroses and psychoses and its use in gaining a better understanding of the structure of any particular neurosis or psychosis. Under the influence of this drug many patients disclose mental contents that were not suspected or revealed before, such as delusions or hallucinations; and other mental mechanisms such as bizarre associations, mannerisms, echolalia, incoherence, etc., become more obvious. Furthermore, this drug, owing to its ability to soften the emotional push behind the symptoms, to eliminate fear, and to diminish the perception of bodily sensations, removes secondary manifestations of the mental state and brings forth the primary essential disturbances, thus enabling a better understanding of the dynamics of the psychosis or neurosis, and more especially the latter.

The so-called narcoprognostic sodium amytal interview was first used by Harris *et al.* (3) and later, among others by Gottlieb and Hope (4), as a preliminary prognostic index of the probable success of shock therapy. These workers used it in schizophrenic patients before the insulin or metrazol treatment. The patients who responded favorably to the "pre-insulin" narcosynthesis with sodium amytal (losing negativism, becoming more normal in speech, behavior, ideation, etc.) usually responded well to shock treatment, whereas those who remained unaffected by the drug showed, in general, unfavorable results to shock treatment. In fact, this technique is being used in some clinics as a kind of screening test, only those patients who respond favorably to the sodium amytal interview being considered for subsequent shock therapy with insulin or metrazol. More recently Hoch (5) introduced another prognos-

<sup>1</sup> Read at the 107th annual meeting of The American Psychiatric Association, Cincinnati, Ohio, May 7-11, 1951.

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tic use of the amytal technique. He used it in patients who apparently had recovered clinically from their psychoses either spontaneously or through shock treatment. The patients appeared to be normal clinically and no evidence of schizophrenic thoughts, mechanisms, delusions, or hallucinations, could be found. However, after sodium amytal was applied some of these mechanisms reappeared in many apparently clinically well-integrated cases, suggesting probably that the recovery through shock treatment is only superficial and leaves many of the underlying mechanisms of the psychoses unaffected.

By far the greatest domain for the sodium amytal interview as a narcotherapeutic means was in military psychiatry. From the wealth of material that appeared during the war, only the excellent results of Grinker *et al.* (6), working with the air forces, Altman *et al.* (7), working with the army, and Hoch (8) working with torpedoed seamen, will be mentioned.

In addition to military practice, this narcotherapeutic method is gaining more and more momentum in civilian psychiatry. Recently Hart, Ebaugh, and Morgan (9) published a summary of conditions in which it has been used successfully in civilian practice. It has also been used recently as an adjunct to psychoanalysis. All writers agree that the best results are observed in the neuroses, while in psychoses it yields only temporary results with relapses after short-term improvement. According to Kalinowsky and Hoch (10) in the psychoses the sodium amytal and pentothal technique does not compete with the shock treatments, the action of which is more effective and more lasting.

The sodium amytal interview is known under various names, such as narcosuggestion, narcocatharsis, narcoanalysis, narcohypnosis, and narcosynthesis, all these being variations with 2 types emerging—narcosuggestion and narcocatharsis. Most workers stress the fact that the narcotherapeutic sessions with sodium amytal have to be followed by more or less intensive psychotherapeutic interviews. This is especially pointed out by Grinker (6) who calls this method narcosynthesis because he feels that the abreaction under sodium amytal alone is not sufficient for treatment of war and civilian neuroses.

He suggests that psychotherapy should be instituted after the patient recovers from the effects of amytal, which is rather quick, because he believes that the amytal treatment works mainly by establishing a positive transference to the psychiatrist, which should be utilized by immediate psychotherapy.

However, in spite of the selective use of this narcotherapeutic procedure and the excellent results in many cases, there are still many patients who do not respond inasmuch as no rapport can be established and no pertinent material obtained from them for use in subsequent psychotherapeutic interviews. For this reason a new type of narcotherapy has been experimented with at the Eastern State Hospital during the past 6 years (11).

This new technique has been undertaken, at first somewhat cautiously, in selected patients who have not responded favorably to narcosynthesis alone, to the pre-insulin sodium amytal interview, or to insulin shock treatment. Later on, after the results with this type of treatment proved encouraging, we proceeded with less caution and applied this method to a greater number of patients as well as to a greater variety of mental disorders. It was observed that, when narcosynthesis with sodium amytal was undertaken following an individual insulin shock treatment, much material could be elicited during this procedure that it was impossible to obtain by any other way, and that in subsequent psychotherapeutic sessions served as major points in developing the patient's insight. Aside from obtaining the important facts, this method also permitted the numerical decrease of the psychotherapeutic sessions as well as a marked shortening of the course of insulin treatment. Most of the patients in this study had been subjected previously to the pre-insulin sodium amytal interview without revealing useful material, some had several unsuccessful sodium amytal narcotherapeutic interviews, and some had completed courses of insulin coma therapy without manifest improvement. Then, as a last resort, another course of insulin shock treatment was given and narcosynthesis with sodium amytal was administered immediately following the individual insulin shock treatment. During this procedure much material could be obtained from the patient for use

in subsequent psychotherapeutic interviews. With this material it was often possible to develop the patient's insight into his illness with an accompanying marked clinical improvement. After the improvement had persisted for several months, certain patients were again given sodium amytal in order to determine if the improvement was, in the words of Hoch, apparent or true. Many of the patients so tested did not reveal persisting abnormal thoughts or mechanisms, suggesting that the improvement achieved under this new technique was true, or at least more significant and deeper than ordinary. This was further substantiated by favorable follow-up reports after the patients had been released on experimental leave from the hospital.

The technique of this treatment method is as follows: An orthodox course of insulin shock therapy is instituted and when the increasing dosage of insulin reaches the coma level the dosage is not further increased. The day the patient is scheduled to receive sodium amytal he is kept in a comatose state for 45 to 60 minutes and then the hypoglycemia is terminated by stomach feeding of an adequate amount of dextrose. After the patient begins to respond, sodium amytal is started at once. Usually  $7\frac{1}{2}$  to 15 gr. of sodium amytal are given slowly intravenously until the desired "temporary state of veritable intoxication" is reached. Then narcocatharsis is started, the sessions usually lasting between 30 and 60 minutes. Afterward, the patients are allowed to eat and to rest, and later in the same day a psychotherapeutic session is held during which the obtained material is used in developing the patient's insight into his condition. Usually there are 3 such sessions a week and altogether the patient has between 6 and 10 sodium amytal interviews and about twice as many psychotherapeutic sessions. Using this new combination method it was possible to cut down the length of insulin course considerably; instead of the usual average duration of 13 weeks, only about 6 to 8 weeks of insulin shock treatment were required. That this not only produces a marked "psychological effect" on the patient but also constitutes a considerable material saving for the hospital (less cost for the insulin, less nursing care, and shorter length of ultimate hospitalization, etc.) is obvious.

The mode of action of this new treatment is not entirely clear, especially since we do not know much about the physiologic basis for the insulin shock treatment and the sodium amytal narcotherapy. However, it seems that this combination of insulin and sodium amytal lowers inhibitions more markedly, establishes transference more expediently, overcomes resistance more quickly, eliminates the conversion manifestations of anxiety more rapidly and reveals more quickly the structure of the mental disorder as well as the focal points for attack on the particular mental disorder than either insulin shock treatment or sodium amytal narcotherapy alone.

A preliminary study dealing with the application of this technique to a group of 11 patients was reported by us several years ago (11). The present study deals with a 5-year follow-up of the original group of 11 patients and is also a supplementary report on 30 more patients who were later given the same treatment and who have been followed for a period of at least 3 years, some of them for almost 5 years.

The original group of 11 patients were all females and were suffering mainly from schizophrenia, paranoid and catatonic types; manic-depressive psychosis, depressed and mixed types; and psychoneurosis, mainly anxiety and conversion hysteria types. As was reported previously, all but one patient of this group have been classified as recovered or greatly improved, and the favorable change in each instance had at that time been well sustained for at least 6 months.

This group was closely followed after their release from the hospital, and we have had regular follow-up reports at approximately 3-month intervals on all patients, in addition to home visits and interviews with the psychiatrists at the hospital. Over the period of 5 years none of these patients has shown any relapse, all having returned to their premorbid personality level, and in all the recovery can be described as nothing less than complete. Some of these women, since their release from the hospital, have gone through pregnancies without showing any evidence of mental illness. In addition to taking care of their household duties some women are also gainfully employed in various occupations.

The 30 patients who were given this same treatment following the first study were also females and, as mentioned previously, fall into wider diagnostic categories. In addition to psychoneurotic, affective, and schizophrenic reaction types, patients suffering from organic psychoses and psychosis with psychopathic personality were included in this study.

The breakdown of this group of 30 patients shows that 13 were diagnosed as schizophrenics, 10 as manic-depressives, 2 as psychoneurotics, 3 as organics, and 2 as psychopaths with marked neurotic etiology. In this connection it again should be mentioned that almost all cases in this group, especially the manic-depressives, had previous hospitalization and all had recurrent acute attacks of mental illness at 6 months to 1 year intervals. Some of the patients had been treated previously, with improvement, at institutions and by private psychiatrists, only to relapse shortly thereafter.

Among the 30 patients, 28 have been released after an average hospital stay of 3 to 4 months, while 2 patients were not able to be released.

One of the 2 was a manic-depressive with paranoid tendencies who later was deported to a state hospital in another state and the latest reports show that she is still institutionalized there. The second patient was a 23-year-old, paranoid schizophrenic of at least 5 years' duration. This patient had previously been treated by a private psychiatrist with both subcoma insulin and electroshock therapy under which she improved temporarily only to relapse later on. The symptomatology, which started a short time after patient had enrolled in college, consisted of seclusiveness, preoccupation, bizarre mannerisms, delusions of persecution and grandeur, and auditory hallucinations. Orthodox electroshock therapy given at this hospital did not produce any change in her condition and for this reason insulin coma and narcosynthesis were instituted. Following a course of approximately 10 weeks patient showed improvement, became less preoccupied, less seclusive, and took part in the routine activities. However, this improvement lasted only a few weeks and she then relapsed and showed symptoms of preoccupation, seclusiveness, paranoid delusions, and both auditory and visual hallucinations. In fact, she became more and more withdrawn, seemed to deteriorate clinically, and at the present is not able to adjust to any type of activity, which is in contrast to her previous adjustment at this institution. It is interesting to note that this deterioration has also been noted on the psychologi-

cal tests, which showed a 38% loss beyond the expected average for her age.

Two patients were released from the hospital following completion of the treatment only to be returned after 6 and 8 months respectively, having again shown symptoms of mental illness. Both of these patients were schizophrenics, 17 and 20 years old respectively at the time of their admission. In both cases the disease had been present for at least 4 years prior to commitments, and one of these girls had been treated previously by a psychiatrist with electroconvulsive therapy. In both, the improvement under treatment at this hospital was maintained and they were able to be released. However, although the environmental factors were good, the patients, after several months, again showed the same symptoms that necessitated their first hospitalization and had to be returned to this institution, where they still remain. Further courses of both electroshock and insulin coma have been of no avail in either one of them.

The remaining 26 patients have all been released from the hospital and have had a follow-up period from 3 to 5 years. All these patients have, according to reports, investigations, and examinations, adjusted very satisfactorily outside the institution, and in none has there been a recurrence of the symptoms that necessitated their original admission. One patient, a psychoneurotic of anxiety hysteria type, has shown at one time mild symptoms of a hypochondriacal nature, and has had 2 interviews with a private psychiatrist. However, even during this period she had adjusted very satisfactorily, in contrast to her adjustment prior to her original admission to the hospital, when she consulted various psychiatrists without success. Again in this group, as in the preliminary group of 11 patients, some of the women in addition to their household duties are gainfully employed, and an interesting sidelight is that 4 patients for the past several years have been successfully engaged in teaching in grade and high schools.

The following case report is representative of the entire group.

L. S., white female, age 15, was committed to Eastern State Hospital because of bizarre behavior of at least 6 months' duration. It was said that she became gradually more seclusive, extremely fearful, would refuse to eat and did not show any initiative whatsoever, although as far as her school work was concerned she became extremely over-conscientious. It was also noted that she began to assume a stooped-over position whereas before she had been erect. She also showed undue preoccupation with religion.



This change was noted for at least 6 months prior to her commitment to this institution. At that time both the parents and teachers noted that the girl's personality was undergoing a marked change, especially since she withdrew entirely from the group and felt that she had to do school work all of her spare time. Her teachers stated that she would do twice as much school work as was required, in spite of the fact that she was always an A student. The parents took her to a private psychiatrist who in turn sent her to a local hospital where she received alternately 18 electroshock treatments and 20 subcoma insulin treatments. However, this produced only temporary improvement and very soon thereafter patient's mental condition relapsed and became worse, which then necessitated her commitment to this institution.

**Family History.**—One paternal uncle died at the age of 21 in a private sanitarium with a diagnosis of dementia praecox. Apparently, he committed suicide. Patient's father has been hospitalized from time to time for excessive alcoholism and has been treated on various occasions for delirium tremens. The patient is the third of 5 siblings all of whom are said to be in good physical and mental health. Otherwise the family history is negative.

**Past History.**—Birth uneventful and infancy not remarkable. The patient had the usual childhood diseases without complication. There is no history of later serious illness. However a mild external strabismus was noted very early. Glasses were prescribed but failed to correct the condition and at the age of 14 patient underwent successful surgery for strabismus. Apparently she was always somewhat sensitive about this physical defect but seemed overjoyed when it was corrected.

Menstruation began at the age of 13½ years, the patient having been prepared by her mother through various interviews. Menses have always been regular and there has been no dysmenorrhea.

As to her premorbid personality, the patient was described as always "immaculately clean, neat, too conscientious, honest to a fault, and too modest." She apparently enjoyed all outdoor sports and activities, and was described as a fairly good mixer. Her affiliation with the Campfire Girls apparently meant a great deal to her, and she has earned many honors in this organization. She liked to help her mother with the housework and in the kitchen, and also seemed very happy when she could have company at home. However, it was noted that she did not seem to care for boys and gave no thought to dates, but was said to be very considerate of her brother's boy friends in the home and would readily converse with them.

**Educational and Occupational History.**—The patient has attended parochial schools and at the time of the onset of her illness had been in her freshman year in high school. She was always an A student, seemed overconscientious with her work and did get along well with her classmates. In the evening, in order to earn some money, patient cared for children in the neighborhood as a baby sitter. She saved the money she earned and used it later to buy presents for her siblings and parents.

**Habits.**—No unusual habits such as drinking, smoking, or drugs were reported.

**Religion.**—Patient is a devout Catholic, attended only Catholic schools and went to church and Sunday school regularly. Religion, however, did not play a large role in the home with her parents.

**Home Situation.**—The family is described to be in good financial circumstances. The father in spite of his instability has been a good provider and the physical setting of the home is good. However, the emotional influences were not too good; first, because of the father's alcoholism and absence from home due to required hospitalization; second, there is sibling rivalry, especially between patient and her oldest sister, 3 years her senior. This sister apparently is rather attractive physically, is of outgoing personality, and is leading a rather extensive social life and has many boy friends. On the other hand, patient is very closely attached to her oldest and youngest brothers and she takes particular pride in taking care of her youngest brother when the parents are away. The father, at times, has been a kind of disciplinarian, especially when he was mildly under the influence of alcohol. The moral and ethical standards in the home were otherwise good. The children had to be at home at a certain time although they were allowed time for recreational and social activities. At times, however, it was also said that the patient witnessed some arguments between her parents and then usually was forced to take sides, which was always the father's side.

**Physical, Neurological, and Laboratory Examinations.**—Physical examination on admission showed a 15-year-old white female, fairly well developed and nourished with no evidence of recent weight loss. Heart, lungs, abdomen, and other organs negative. Blood pressure 130/80. However, there was a marked skeletal deformity present, the patient not being able to stand erect; this, however, is due to her mental condition. There is also a mild scoliosis of the thoracic spine. The neurological examination, except for hyperactive but equal tendon reflexes and tremors of outstretched hands, essentially negative. Laboratory data, including blood and spinal fluid serology and roentgenogram of the chest, all within normal limits.

**Psychiatric Examination.**—In psychiatric examination on admission patient was fairly cooperative but passively resistive to the routine procedures. She was extremely fearful and would shake all over when approached by anyone. Most of the time she sat in her room pretending to read, otherwise staring into space. At times her behavior was suggestive of auditory hallucinations. When approached she would cry and would only answer to leading questions in a whispering voice. She would eat very little and seemed careless about her personal appearance. She displayed many bizarre mannerisms such as picking her fingers and there was evidence of posturizing and waxy flexibility. She had difficulty in walking, was stooped over, and continuously looked at the floor. Her facial expression seemed to display both perplexity and confusion. When she answered questions her

stream of thought was fairly coherent and relevant. She was unable to give an account of the events that led to her commitment, although she stated that she had been treated previously by a psychiatrist with some kind of shock therapy. Her mood was characterized by marked depression. She seemed unstable emotionally and during the conversation would suddenly start to cry without apparent reason. Thought content indicated preoccupation with herself. No definite delusions or hallucinations were detected although her behavior was extremely suggestive of auditory hallucinatory experiences. There was no evidence of ideas of reference or ideas of persecution or other paranoid trends. Sensorium seemed fairly well preserved and there was no evidence of memory defect. She carried out fairly well the tests requiring a certain amount of concentration and was oriented in all 3 spheres, however, insight was completely lacking and her judgment seemed impaired.

*Psychological Examination.*—Patient was given a Stanford-Binet Intelligence Test and received an IQ of 115. She also was given a Rorschach and the examiner interpreted the almost complete rejection of the cards as indicative of psychosis, and the response of color-naming and enumeration of designs as pathognomonic of schizophrenia.

*Course and Treatment in Hospital.*—Patient's adjustment was rather poor. She was extremely seclusive, showed marked evidence of daydreaming, and later on she also admitted auditory hallucinations. She kept aloof from the group and continued to present many nursing problems. She refused to eat and stared into space, did not attend to her personal needs, and had to be taken to the bathroom, etc. She became more and more careless of her general appearance. A special psychiatric student nurse was assigned to her but this was not too successful since patient continued with her bizarre behavior. She was first given several sodium amylal interviews; however, nothing could be obtained from her, especially in regard to the family interrelationship, but as soon as sex was discussed the patient would shake all over, would start to cry, and would not answer at all. She then was placed on insulin coma followed by narcosynthesis interviews; during these interviews she gave much material of a pertinent nature that clarified the mechanism of her mental disorder and was used in subsequent psychotherapeutic interviews to develop her insight and understanding of her illness. She became more outspoken and at once admitted that she felt rejected at home, because, according to her, her parents preferred her older sister. She showed a marked ambivalent attitude and guilt feelings toward her parents, especially her father, and later on it became obvious that her father, during one of his alcoholic bouts, apparently attempted to seduce her. However, she tried to cover up for her father and only under pressure would she admit that he had been hospitalized on various occasions for alcoholism. She states that she was very much ashamed since she always thought he was a very religious person and above doing such things. There was also a marked feeling of inferiority and insecurity that seemed to be based on her early physical deformity

in the form of strabismus, which was later corrected, and also partly on the poor interpersonal family relationship. Altogether this patient had 10 weeks of insulin coma therapy, and approximately 8 narcosynthetic sessions followed by about twice as many psychotherapeutic interviews and showed marked improvement in her clinical condition. At first her posture became more erect, she took more part in ward activities, and showed no evidence of daydreaming or preoccupation. Her extreme fearfulness and modesty almost entirely subsided as did her bizarre mannerisms. She conversed more freely and engaged in occupational therapy and finger painting. She was allowed on various occasions to leave the hospital for the day with her parents and seemed to enjoy this very much. Shortly before her release she was given narcosynthesis with sodium amylal and no abnormal behavior trends could be detected. The final diagnosis was schizophrenia, catatonic type.

The follow-up report shows that after her release from the hospital patient was placed in a boarding school where she at once adjusted very satisfactorily, again became an A student, and took interest in all social and recreational activities. She then graduated from high school and at present is attending college, where she is adjusting very well, socially and academically, and is one of the honor students.

Approximately 6 months ago patient's father died suddenly and she seemed to take this very well. From all reports it can be stated that her recovery is nothing less than complete and there is nothing in her behavior to suggest that she had ever been mentally ill.

#### SUMMARY AND CONCLUSIONS

The same favorable results as reported for the original group of 11 patients were obtained in the second larger group justifying the conclusion that narcosynthesis immediately following insulin coma appears to deserve its place in the treatment of mental disease, and especially seems worth while in patients who have previously not responded either to insulin coma therapy alone, or to the prognostic pre-insulin sodium amylal interview. This type of treatment on the basis of this study not only seems to hasten considerably the recovery of the patients and lessen appreciably their hospital stay, but also seems to produce a more prolonged and well-sustained recovery. In fact, 10 out of 11 patients of the preliminary group have adjusted satisfactorily outside the hospital for periods of over 5 years, and 26 of the 30 patients of the second group have also made satisfactory extra-institutional adjustment for periods of 3 to 5 years without recurrence of symptoms of mental illness.

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## PSYCHIATRIC STUDY OF COAL MINERS IN EASTERN KENTUCKY AREA

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The inception of a medical program for the United Mine Workers of America, initiated in the latter part of 1948 by the establishment of a Welfare and Retirement Fund, provided a unique opportunity to study this group of individuals engaged in an important and dangerous industry. Prior to the beginning of this program about 70% of the coal miners and their families received their services through prepayment plans of one sort or another and the medical facilities, with an occasional exception, ranged from adequate to very poor(1). Physicians were poorly qualified, over-worked, and more interested in profits than quality of medical care. The Welfare and Retirement Fund, consisting of royalties paid by the coal operators for each ton of coal mined, provided for a high quality of medical and hospital coverage on a contract basis for members of the United Mine Workers of America.

The medical literature of this country is meagre in regard to any psychiatric study of miners as a group, and is nonexistent as related to the problems of miners in Eastern Kentucky. The general observations to follow were derived from the study of approximately 100 coal miners from this mountain area seen in psychiatric consultation. Some were seen for one diagnostic interview; others were intensively examined while hospitalized in a private psychiatric hospital.

The stimulus for this paper was sparked by the puzzling picture presented by most of the men examined, when contrasted with psychiatric practice in an urban area of Kentucky. At the same time, the clinical picture, particularly in the older age group, assumed such a uniform pattern as almost to be recognized as a "miner's syndrome."

It immediately became apparent that an understanding of this group involved, as a prerequisite, a knowledge of their cultural, geographical, and social background as well as the problems inherent in coal mining itself.

The section of the country that these patients inhabit, primarily Harlan County, is composed of rugged terrain with many mountains and river tributaries. Formerly, the river bottoms served as the only means for communication and it was on their banks that the population originally settled. Because of the county's terrain it received an unusually large amount of rain, which produced an ideal base for growing timber and certain crops, such as corn. Secondly, many flash floods occurred causing erosion of the hillsides and cultivated land. A characteristic of the county's narrow valleys was the lack of sunlight, giving most of the valleys a damp and chilly climate over which hung the pall of coal smoke. The economic resources were divided primarily into the forests, arable land, and mineral deposits. Formerly, extensive and valuable forests of hard and soft woods covered all the sections. Only a small proportion of the land, under 10%, was adapted to agriculture. Within Harlan County were the richest coal deposits of the state.

The mountain area was settled rather late, principally after 1800 by people of Virginia, Tennessee, and North Carolina who had a predominantly English culture. By the time they came to Kentucky, the pattern of dispersed settlement and the general system of land ownership had been established and most of Eastern Kentucky became a society of land owners who lived in "string town" settlements along the creek and river bottoms. Because of topography and other natural conditions this region developed an economy of self-sufficient subsistence farming in which independent yeomen owned family farms, some of which were large in terms of total area, though few had extensive crops or pastures. Although some people from the outside have continued to come into Eastern Kentucky since its first settlement, most of the region has been settled by natural increase. The first settlers and their children and grandchildren had such large families that the area had a phenomenal increase in population. As farms were divided and sub-

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divided among children and grandchildren, succeeding generations became dependent on smaller and smaller tracts of land. Some families had to move on to areas where land was more plentiful but many descendants of the original settlers remained near their ancestral homelands and whole neighborhoods came to be made up of kinfolk. The society became a familistic society; kinship ties were the most important bonds in the mountains.

The familistic character of the mountain region, together with its limited education facilities, supplemented the topography and geographical situation in producing the isolation that caused it to become a social region distinct in many ways from other parts of Kentucky and the nation. Since the development of lumbering and coal mining in the early 1900's, the barriers that had shielded Eastern Kentucky from many of the influences affecting other sections gradually diminished.

In the original social structure of the mountain people, the most important unit was the conjugal family (2). They lived together on the farms, worked together, played together. Every person as an adult was expected to marry and with his spouse form a new conjugal family. The family was closer to the patriarchal pattern than the American family in general. Relationships among siblings were unusually close. There was a strong feeling of solidarity. Families settled close to one another for protection. Inter-marriage was common. This characteristic of self-reliance influenced the mountaineer in the belief in his ability to take care of himself without outside assistance. He made his own decisions, settled his disputes by taking the law into his own hands. Personal wrongs were settled by weapons. The economy was based upon the agricultural products of corn and tobacco. These crops depleted the soil rapidly, requiring the clearing of new lands every 7 years. There was little need for outside products and a system of barter formed the basis of exchange.

Politically the frontiersman was independent, defensive, and resistant to the expansion of government. Institutions were of little value since he was far from their source and would benefit little from them. Public welfare, as such, was unknown. Most

of the people were on a low standard of living; so there was therefore little difference between individuals. To exist, everyone had to work and labor was at a premium.

A tremendous amount of hostility was evidenced in quarrels, bickering, and malicious gossip as well as in actual physical conflict (3). It may be that the familism of the society was an important factor in the hostility. The need for repressing hostile impulses toward members of one's family and family group resulted in displacement of aggression toward people outside the group.

By about 1910 the pioneer system of agriculture had about used all of the new and vacant land that remained in Harlan County. The industrial revolution in this area began about 1910 under the auspices of eastern financial interests. In 1910 the Louisville and Nashville Railroad Company completed a branch line to Harlan and in 1911 the first car of coal was shipped out. A few years later large-scale coal and timber operations were under way and isolation began to cease. Hordes of people poured into the region in search of fortune. It was essential to provide housing, stores, churches, schools, and roads. Towns and villages arose. Houses at mining camps were temporary and built at minimal expense. Gradually the family lost its status as the basis of society; instead the mining company or coal operator guided the individual's destiny. Men and their families were drawn into the coal camps; to hold a job one had to live there. The new houses attracted the mountaineers. They no longer had to work from sun-up to sun-down 7 days a week. A company store was only a few blocks away and food had only to be charged. Nearby were cafés, neighbors, and schools. The company took care of all needs.

Once away from the land, the miner and his family lost ability to support themselves outside the economy of the industrial system and became dependent on the coal industry and its fluctuations. Social life underwent a complete change. The coal camp and its laws became the center of the social structure rather than the family. The law was the company deputy and parents began to look to the law to settle problems rather than find a solution themselves. Resistance to giving



up individualistic freedom was strong but any objective lack of cooperation was dealt with by the laws of the coal camp. Threat of discharge and eviction was enough to quiet any individualist. Self-sufficiency and independence were gone. There was no other employment and he knew nothing else.

Group living was accepted as a necessity but brought no group responsibility. There was little interest in the town, county, or home. Everything was owned by the coal company, vitiating any tendency toward initiative. No leadership was expected of the individual, who grew up dependent on the directions of others.

Expansion of political institutions, schools, courts, sanitary and health facilities, and housing required regulations. Problems of welfare arose for the first time on a large scale since employment was dependent on mining and coal operation. Politics assumed greater importance, and bribes and gratuities were an accepted part of public office.

An indication of the growth of the coal industry is evidenced by the following figures. In 1911, coal production in Harlan County was 25,841 tons; in 1922 it was 6,112,050 tons. During World War I there was a sharp increase in production. During 1920-21-22 a runaway coal market developed with overexpansion of production facilities; thousands were attracted to Harlan by the high wages and all other occupations ceased. In 1922 the boom terminated. During the period from 1923-27 over 200,000 miners left the industry for good.

During this period Harlan County was able to increase its coal production because of the low wages paid as it had nonunion labor and wages were reduced to bring prices of coal down below that of competition. The policy of wage cutting further depressed the national coal market so that the price per ton fell below the cost of mining it. This helped explain the rigid policy against unions in that area and the vicious methods used to prevent unionization.

The period between 1920-30 witnessed the final breakdown of agricultural life. The modern highway and automobile established contact with the outside world. The miner no longer had to live in the coal camp or buy from the company store. Education in-

creased. In 1910 illiterates composed 31.3% of the population over 10 years of age. By 1930 this had decreased by 20-22.2%.

Most miners were mountaineers, trying to retain their individualism and independence. The antagonism they felt toward the restrictions imposed on them by the new industrial society was buried within them because the attractions of this economy outweighed its limitations. Occasional animosities erupted in drinking and shooting sprees. The coal camp provided no opportunity to drain off hostilities by group action. Previous to 1920 unions and their activities meant little to the average mountaineer as they were not attuned to group action. By 1930 the miners realized how little income they were receiving. Most of them were in debt and the companies attempted to make up losses from the drop in coal prices through deductions in wages, at the same time becoming more oppressive with threats of eviction and discharge. Some miners necessarily turned to the unions. Wages, hours, working conditions, and the extent of employment were largely determined by the outside corporations operating the mines. Local management was vested in persons native to the region, proud individualists who felt they had the right to run the property without interference. The operator was the undisputed authority over the employees.

During the 1930's the conflict between operators and unions overshadowed all else and earned for the county the stigma of "Bloody Harlan," because of the violence that erupted bringing misery and terror in its wake, and resulting in a high crime and homicide rate, juvenile delinquency, coal camp slums, and retarded social progress.

The depression of 1929 brought home to most of the inhabitants that the coal economy was dependent upon the industry of the rest of the nation for its prosperity and that isolation was no longer possible. Wide-scale suffering reversed the movement from farm to coal camp and began one in the opposite direction. It brought the realization that a large proportion of the young people had to look elsewhere for employment, and what was good for the coal industry was not necessarily good for the county. It fostered a breakdown of the paternalistic system, the

end of unchallenged minority control. The miner lost faith in the operator and turned his allegiance to the union as his protector. It received all his loyalty and became the chief source of security. Under the aegis of the union the miners received various benefits such as medical group insurance, sick and death benefits, and burial funds. They are also covered by Social Security and Workmen's Compensation and Unemployment Insurance.

With this background in mind, several typical cases are cited.

E. B., a 45-year-old miner from Eastern Kentucky, was referred by an internist for psychiatric examination after medical investigation had revealed no physical basis for his complaints.

The patient stated that he quit work 6 years ago because "his nerves gave away." He would become extremely weak and have to rest. Four years ago he had a smothering sensation with numbness over the body and was told that he had had a heart attack. Since then he had seen numerous physicians and been given various conflicting opinions and diagnoses, among them, low blood pressure, hardening of the arteries, gall bladder trouble, etc. Attacks were periodic and characterized by burning in the chest like a ball of fire, pains around the heart, jerking of the eyes, smothering and shaking. Upon waking his legs hurt and muscles quivered. If he lifted anything he would "go to pieces" for 24 hours and have to remain in bed. Dizzy spells and headaches were frequent. He mentioned that at one time he had shoved a coal car, which may have "bust a nerve."

As a result of his incapacity, his wife, who was 5 years older, had become the wage earner by doing housework. She accepted his illness without complaint. They had been married 25 years and had no children. The patient spent most of his time about the house but was able to hunt, fish, and drive his car, all of which he thoroughly enjoyed.

Background revealed that the patient's mother died when he was 13 years old. He attended the second grade and was able to read and write. He began work in the mines at 17, quit after a year to do railroad work for a short time, returning again to the mines where he remained until 1930. After being exposed to "bad air" several times he changed to tippie work, which he did until he became ill. His father had remarried and died in 1933, having had 11 children by each marriage.

The patient stated that until 1936 he was rather wild, drank excessively, carried a gun, smoked, was profane and promiscuous. After a particularly bad hangover when he had been shooting up the town, he suddenly became converted and gave up all his bad habits, becoming a sober, church-going individual. He was not worried about the hereafter as he felt he had a better place to go.

Mental status revealed the patient to be friendly, talkative, cooperative, and in good contact with re-

ality. Intellectual status seemed to be of borderline level. There was no evidence of psychosis. Symptoms were related without anxiety or depression.

The patient passively accepted his illness and was cared for at home by his wife as if he were a child. He was not alarmed by the various diagnoses he had received. The hostility that he formerly displayed when he carried a gun had been completely repressed and he had nothing but kindly feelings toward everyone. When exposed to a situation where a fight was brewing, he would become upset and shaky and have to leave.

The patient quit work in the mines after being exposed to "bad air." Then, while working on the tippie outside the mine he fell off a runaway coal car, which created fear and anxiety. Shortly thereafter, the work became excessively heavy. He and his partner were supposed to do all the loading, but the latter shirked his work, leaving the entire responsibility to the patient. This created a great deal of hostility that he was never able to express. It was in this setting that he developed the symptoms that made him quit work entirely.

T. R., age 41, was referred by an internist after thorough medical workup had revealed no organic pathology. The patient had been sick 6 or 7 years, first complaining of digestive symptoms for which no organic cause was found. Two and a half years ago he developed low back pains, worse on bending over or on exertion, which condition prevented him from working. Because of his stomach distress in the past he quit work in the mines for 5 months, took medicine regularly, and improved sufficiently to return to work. Although symptoms recurred as soon as he returned to the mines, he stuck it out another year and then quit. He attributed his relapse to the "bad air" in the mines to which he had been exposed several times. He also complained of shakiness and weakness on slight exertion, in addition to insomnia and shortness of breath. Appetite was unimpaired.

Since leaving the mines he had done no work, spending his time around the house. He formerly received a pension of \$170.00 a month from the UMWA Welfare Fund before this part of the program was discontinued.

The patient was reared on a backwoods mountain farm and was the oldest of 6 siblings. He completed the 4th grade and could read and write "a little." He began work in the mines at 14 and worked fairly steadily, having had no experience in any other type of work. He married at 20 and fathered 12 children, 2 of whom were dead.

Mental status revealed the patient to be friendly and cooperative and better dressed and groomed than the usual run of miners. He was in good contact and displayed no evidence of psychosis. Intelligence was of dull normal level. Insight was completely lacking. No anxiety or depression was manifested over his condition or the fact that he was disabled. There were no hostile tendencies and he got along well with everyone. The outstanding finding was the passive, dependent attitude with regressive tendencies. The patient was a chronic invalid with little motivation toward getting well.

Certain common factors characteristically appeared time after time, especially in miners in the age range 40-55, which differed from the clinical picture in the younger men between 20-35. The older men had usually started working in the mines while in their teens, frequently beginning by accompanying their fathers as helpers. This was long before the days of the UMWA Union, when the operator's word was law and mining was an extremely hazardous occupation. Safety measures were primitive and working conditions poor. Hours were long, and coal loading was done by men working knee-deep in water or on all fours in cramped, confining positions, never knowing when there would be a cave-in or when a gas-filled mine would break into flames. They had usually had the experience of carrying out comrades crushed by falling slate or overcome by "bad air." The number of miners killed from all causes annually from 1906 to 1945 averaged 1,981, which means that for every working day at least 5 men were killed (4). The total for the period was 79,240. The number of miners injured each year during the 14-year period 1930-1944 averaged 66,968.

Besides the danger associated with daily work, there was ever-present insecurity created by strikes and frequent work stoppages from one cause or another. Considering a calendar year of 365 days, the miners have worked as little as 142 days and only 9 times out of the last 25 years have they averaged more than 200 days a year (5).

Despite these factors, the most constant observation in the older age group was the complete inhibition of anxiety. Passivity and dependency were prominent. The absence of anxiety is generally a characteristic of the mountaineer in this area, particularly in the older generation, and may be regarded partially as the result of the strong familism that existed. Every man felt that if he were incapacitated his kinsmen would take care of him and he would not suffer. Later this dependency was transferred to the Union. Another factor, perhaps more important in understanding the lack of anxiety, is the absence of the competitive spirit so prevalent in more urban areas. The mountaineer is not pervaded by ambition. He is in the same

position as his neighbor. He suffers the same deprivations, enjoys the same pleasures. The farmers have farmed all their lives, the miners have done nothing but mining and are resigned to that. Most have never been out of the state, many have never left the confines of their own county. Formal education was never considered important. Schools were isolated and attendance irregular. Doing the chores and eking out a living were more important. The isolation and inbreeding of the region tended to maintain this attitude. It was only with the advent of highways, radio, movies, and the recent war, which gave the younger men an insight into the ways of other people in different parts of the country, that anxiety-producing factors began to infiltrate. The mountaineer began to compare his lot with others and became dissatisfied. He developed a deep-seated feeling of inferiority because of his status. Many miners examined were ashamed of their illiteracy and defensively launched into explanations as to why they never completed the 3rd or 4th grade. Their parents did not encourage them, the school was miles away, numerous brothers and sisters had to be looked after, etc.

Another consideration responsible for the lack of anxiety is the natural attitude toward sex. With large families reared in 1- and 2-room houses, sex does not long remain a mystery. Sex play begins at an early age. Girls mature early and marry in their teens. The men are often promiscuous sexually and it is rare to elicit guilt feelings over masturbation.

So the miner by his pioneer heritage was endowed to withstand anxiety. To the dangers of his occupation he reacted with conversion mechanisms. Very few of the older miners consciously acknowledged fear of their job. On the contrary they claimed that they enjoyed the work and wouldn't want to do anything else. A commonplace statement was "once a miner, always a miner." A few had migrated to the industrial automobile cities but after varying periods usually returned to the mines. Their rationalizations to explain their illnesses were such as these: "Hard work has busted my nerves," "I've been in 'bad air' too much," and "My nerves are shot." Despite the frequent somatic com-

plaints, they did not fixate upon these as the cause of their illness, but on their "nerves." "Worn out nerves" explained their general inertia and weakness, their inability to do any bending, lifting, or physical exertion without getting faint, shaky, or "going to pieces."

An incidental observation was the premature appearance of old age, especially after 50. Cerebral and peripheral arteriosclerosis were common. This is characteristic of the mountaineer in general and may partially be explained by the long years of hard physical labor, inadequate diet, dental caries, and unhygienic living conditions.

Many of the miners in their youth were wild characters who drank excessively, were involved in fights, avoided church, and were sexually promiscuous. On approaching middle age this type of adjustment would often dramatically change. Bad habits would be given up, the individual would become religiously preoccupied and state that he had been "saved," which meant that his sins had been forgiven and that he was right with God. At times this conversion could be traced to the miner's realization of the danger of his occupation and his unpreparedness in case of death or injury. Occasionally the conversion followed slight injuries. One miner complained of nervous spells during which he would become weak, shaky, and tremulous. Seven years prior to examination he had been "saved" when the spirit of the Lord suddenly came to him. About that time he was working in a gaseous mine and was extremely worried about its blowing up. After his conversion, his worries disappeared and he was able to perform his work without anxiety for several years.

The religious convictions of the miners must be evaluated in terms of their cultural background. Compared with urban patients, their beliefs and utterances would be considered evidence of severe hysterical or psychotic manifestations. However, it was commonplace to hear of sudden religious conversions either spontaneous or at church services. Visions of the Lord or receiving messages from Him were often described. Many, even those who could not read, were able to quote long passages from the Scripture. At least 3 of the miners in this group,

after their conversion, became ordained Baptist preachers. All who had been saved, and thus were no longer sinners, derived a great deal of satisfaction from their faith and were sure the Lord would eventually cure them, hence their lack of anxiety or depression. These "sinners," once converted, no longer felt hostility toward anyone, and regarded all as their brothers, despite the fact that in many cases circumstances were such that hostility would normally be expected. There was universal acceptance of the explosive type of conversion as the normal form of religious experience. The following excerpt is taken from *Religion in the Highlands* by Elizabeth R. Hooker.

At a Camp Meeting about 1803 at Cave Ridge, Kentucky, the attendance was 10,000 at the lowest estimate and by many was believed to be even as high as 25,000. At this meeting, services were held for 6 days and nights almost without intermission. Many physical phenomena took place. Some persons fell and lay unconscious on the ground. Many, even of those who came out of curiosity, were taken with spasmodic jerks. Some rolled on the ground and others ran or danced or barked or laughed hysterically. Others experienced visions or trances. Many were converted and began at once to exhort others to repentance. Similar phenomena were experienced in the other Camp Meetings of this revival.

The standard religious experience became, largely through the influence of these Camp Meetings, an emotional explosive conversion. A miniature repetition of the above occurred in 1950 at Wilmore College, a nondenominational school in Central Kentucky. A revival was held, lasting several days, during which there were numerous demonstrations of religious ecstasy and conversions by the young college students and townspeople.

The psychiatric picture found in the younger miners differs in that there is a conscious awareness of anxiety and tension, similar to anxiety states seen in urban practice. They have a definite fear of working in the mines, which is reflected in psychosomatic symptoms. The passive dependent attitudes still persist. The expression of anxiety in the younger men may be due to their having outgrown their geographical isolation owing to modern transportation, improved educational facilities equivalent to other areas in the state, and service in the armed forces during World War II. In ad-

dition, they have been exposed to the disrupting influences of family life caused by the insecurities of the coal industry and have outgrown the strong familism, which served as an anxiety-inhibiting mechanism.

H. N., a 33-year-old Eastern Kentucky miner, was admitted to Wayside Hospital, Lexington, Kentucky, for diagnostic study. On admission he complained of "nervousness." In June 1950, while working in the garden, he had the sudden feeling of electricity running over him and blacked out. He remained off work for a few weeks and improved. On the day he was to return to work he had 2 spells during which everything seemed blurry and a peculiar feeling passed over him. He was afraid to return to work for fear of precipitating another attack, which aroused considerable anxiety. He also complained of urinary frequency, palpitation, indigestion, restlessness, a vague feeling of dread, and frightening dreams.

The patient had an 8th grade education. He began work in the mines at 23 and did this for 3 years, until entering service. He served in an artillery unit in the European theatre and was awarded a Bronze Star. On his return he resumed work in the mines, operating a joy loader, a machine used to load coal.

He married in 1947 and had no children. Prior to marriage he ran around a good deal and drank frequently.

The patient's father operated a large still in a backwoods mountain area and was shot during an argument when the patient was an infant. The mother remarried 2 years later. The stepfather was a strict disciplinarian whose influence with the children ended when the patient's older brother hit him over the head with a baseball bat, fracturing his skull. The children were then sent away to boarding school. The mother subsequently obtained a divorce, remarried a few years later, and was again divorced. The patient never got along too well with his mother, although he lived with her a short time following his marriage. After an argument the mother made the patient and his wife leave.

Physical and neurological examinations were negative. Laboratory work, including CBC, urine, Kahn, blood sugar, G.I. series, skull X-rays, and EEG, was all within normal limits.

Mental status revealed a friendly, cooperative person who appeared younger than his 33 years. He joked frequently and enjoyed his hospital stay, rapidly assuming a dependent attitude. Numerous manifestations of anxiety were present in the form of restlessness, indigestion, shakiness, weakness, choking sensations, and palpitation. He felt that something was physically wrong with him, possibly located in the stomach. He was in good contact with no evidence of psychosis. His friendly, bantering exterior covered up strong feelings of hostility toward his family.

He frankly admitted his fear of working in the mines. Operating a joy loader brought him in contact with electric cables, which he feared might set off an explosion. He was constantly alert for manifestations of gas and was never comfortable while

working, noticing a continuous tension. At night he would dream of being trapped by fire in the mine. The patient's anxiety was partially conditioned by his combat experiences, which reduced his anxiety tolerance. However, symptoms did not become overt until he began work in the mines. He was attracted by the high wage scale as well as the proximity to his relatives. He had doubts of his ability to earn a living in a larger city despite the fact that he had received adequate vocational training in automobile mechanics.

Prior to the formation of the UMWA Welfare and Retirement Fund, very little opportunity was available for psychiatric examination of miners, and a comparison of their symptoms and clinical conditions before and after the Welfare Fund is impossible. This would have been of interest since one function of the Fund was to provide disability pensions. This created problems found wherever compensation is an issue. It fostered further dependency, which was transferred from the coal operator to the Union and its Welfare Fund.

Injuries in mine accidents, both trivial and severe, were frequently followed by hysterical conversion symptoms, serving as a defense against returning to a dangerous job as well as motivated by desire for compensation and a pension. Pensions were administered indiscriminately without sufficient screening of cases, and on a prodigious scale. The Fund was temporarily discontinued in September 1949. A miner who applied for the Welfare benefits could receive anywhere from \$80.00 to \$150.00 per month, depending upon the number of dependents. Many could get along quite well on this as they usually had small gardens or farms to augment their food supply. It was too much to expect them to return to their dangerous work when they could receive money by staying at home. It was a common saying that when the Welfare Fund was discontinued the miners threw away their crutches and returned to work. The administrators of the Fund recognized this weakness and, when the program again went into effect, disability pensions were provided only after a much more rigorous screening process.

#### SUMMARY

1. The social and cultural background of the Eastern Kentucky coal miner is described.



2. A "miner's syndrome" is commonly seen in the miner past 40. This is characterized by numerous somatic complaints, a passive dependent attitude, and an outstanding lack of anxiety, with rationalizations based upon having been exposed to "bad air," hard work, and "nerves being run down." Certain theories are advanced to explain the lack of anxiety.

3. The clinical picture of the younger miner is described. This differs from the older age group in that anxiety is manifested on a conscious level. This is related to changes occurring in the social and cultural background as well as an overt fear of occupational dangers.

4. Advantages and disadvantages of the United Mine Workers of America Welfare and Retirement Fund are discussed. The

Fund serves as a source of security to the miner and offers definite benefits; at the same time it fosters dependency and a chronic invalid reaction based on fear of the hazards of mining as well as a desire for compensation.

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## HOSPITAL EXAMINATION OF ADULT OFFENDERS<sup>1</sup>

K. G. GRAY, K. C., M.D.,<sup>2</sup> TORONTO, ONT.

In Canadian jurisprudence the subject of insanity as a defence in a criminal prosecution is within the legislative jurisdiction of the federal government. The legislation is contained in section 19 of the Criminal Code and is a codification of the M'Naghten rules. The law is similar to that which obtains in the 29 states in the United States which abide by the M'Naghten rules. The *irresistible impulse* test used in the District of Columbia and 17 states does not obtain in Canada.<sup>3</sup>

Where insanity is pleaded as a defence, the trial is conducted by a Supreme Court judge and a jury. Expert witnesses testify for the defence followed by expert witnesses who testify for the Crown in rebuttal.

During the past 100 years since the M'Naghten rules were adopted in England, numerous criticisms have been advanced in the various jurisdictions where the rules are in force. The medical examinations are usually conducted in jail and are necessarily incomplete. The examinations are made at a considerable interval after the offence was committed: this means that the psychiatrist is making an examination for the purpose of expressing an opinion as to the mental condition of the accused as it existed at a time that may be weeks or months prior to the date of the examination. Another criticism arises out of the contest that is likely to occur at the trial between the psychiatrists who testify for the defence and the psychiatrists who testify for the prosecution. In Canada, a person who has been acquitted by reason of insanity is, in practice, likely to be detained for life in a mental hospital even though he recovers from his mental illness.

The practice of detaining the acquitted prisoner for life in a mental hospital means

that a prisoner pleads insanity only in a case where he is charged with murder. If there were no alternative procedure available in Canada, psychiatric examination of adult offenders would be restricted to the relatively small group of persons charged with murder who plead insanity as a defence.

In the Province of Ontario an alternative procedure has been developed, which is the subject of this presentation. In 1925, legislation was enacted whereby a judge or magistrate may commit an offender to the Toronto Psychiatric Hospital for mental observation. The order may be issued upon request of the prosecution, the defence, or by the court *proprio motu*. At present, 10 beds are reserved at the hospital for these cases under the aegis of the department of psychiatry of the University of Toronto. All the facilities of the hospital are utilized in the investigation of these patients. They are lodged in the same wards with other patients. Complete physical, laboratory, psychiatric, psychological, and other tests are carried out in each case. There is no limit on the period of observation, which averages 5.14 weeks.

When the investigations are completed, a report embracing the findings and recommendations of the hospital staff is sent to the court. The report is not intended to deal primarily with the subject of the criminal responsibility of the accused as defined by the M'Naghten rules. Emphasis is placed upon the existence of any physical or mental illness that may respond to treatment. The reports are used by the court, not to determine guilt or innocence, but in formulating the sentence. Where the accused is psychotic, the court usually concurs in his direct transfer to a mental hospital on the certificates of 2 psychiatrists. Where the condition is one that is likely to respond favourably to outpatient therapy, the court may place the accused on probation for this purpose. Where there is no indication for psychiatric treatment, the accused is dealt with as a criminal offender.

Since the inception in 1926 of this service,

<sup>1</sup> Read at the 107th annual meeting of The American Psychiatric Association, Cincinnati, Ohio, May 7-11, 1951.

<sup>2</sup> Assistant Professor of Psychiatry (Forensic), University of Toronto.

<sup>3</sup> Branham, V. C., and Kutash, S. B. *Encyclopedia of Criminology*, p. 195. New York: The Philosophical Library, 1949.

4,388 persons have been received into the hospital for this type of examination and report.

As a rule the cases referred to the hospital are charged with minor offences. It is not usual to refer cases charged with indictable offences. In the unusual instance where such a case is referred, it is for the purpose of obtaining an opinion as to criminal responsibility. The usual practice is for a magistrate to refer an offender who is charged with a lesser offence, which will be tried summarily in the magistrates' court. Other cases are referred in which there is no criminal charge and the accused is in custody for the purpose of determining whether he is certifiably mentally ill.

The experience for the year 1950 is analysed in the appended table. During the year 1950, 63 patients were admitted. There were 44 men and 19 women. This ratio is consistent and is noteworthy in planning the introduction of this service in other areas. There were 56 patients discharged during the year. The average length of stay in hospital was 5.14 weeks.

Of the 63 patients admitted, 19 were charged with being mentally ill. The most frequent criminal offence was assault, 9 cases. There were 8 cases charged with contributing to juvenile delinquency. Eight persons were charged with theft. There is a relatively high proportion of cases charged with sexual offences. The selection of cases is left entirely to the jurisdiction of the magistrates.

In considering the disposal of the 56 patients who were discharged during the year, it will be noted that 25 patients were certified and admitted to mental hospitals. Six patients were discharged directly to their homes with the approval of the court. Twenty-five patients were returned to court.

Particular attention should be directed to the 25 patients who were returned to court. In each case, a report was sent to the court embracing the findings and recommendations of the hospital staff. In only 6 cases did the court impose fine or imprisonment. The remaining 19 offenders were given suspended sentence or probation or the charge was dismissed or adjourned *sine die*. This was frequently done in order that the accused per-

son might be provided with an opportunity to receive psychiatric treatment on an out-patient basis.

These cases have not been followed for a sufficiently long period to make worthwhile deductions as to the ultimate prognosis. Empirically, however, it may be stated that the results have been gratifying. Illustrative cases could be selected in which the offender has been restored to a useful role in the community.

In a recent discussion with the senior magistrate for the Toronto courts, the writer endeavoured to classify the cases in which this procedure is of particular value. The following groups were suggested.

1. *Unexplained assaults.* In this type of case, particularly where a husband has assaulted his wife, there is very frequently an underlying mental disturbance that can usually be determined only by hospital observation.

2. *Impulsive acts of violence.* This refers to the kind of case where the evidence shows some act of violence for which there appears no obvious explanation, for example, a recent case where a young man seized a policeman's revolver and ran away with it. There is usually an underlying mental disturbance in these cases.

3. *Sex offenders.* There is quite a proportion of these cases that respond favourably to psychiatric treatment, particularly homosexuals, cases of indecent exposure (exhibitionism), "peeping toms," and cases involving children.

4. *Theft.* There are some cases of theft in which the act seems to be committed without any advantage to the offender. Frequently there is an emotional disturbance in these cases, sometimes with a sexual basis.

5. *Attempted suicide.* It is considered that all these cases should receive psychiatric examination; most of them are depressed patients who need treatment.

6. *Amnesia* or cases in which the accused alleges loss of memory. Some of these cases are malingerers but some of them have a genuine loss of memory. In epilepsy, for example, there is usually a complete loss of memory for some time after the fit.

7. *Arson.* As in cases of theft there are certain cases of fire-setters where the act is

committed without any hope of financial gain to the individual. Some of these offenders are mentally defective; in some cases there is an emotional disturbance and in some cases there is a sexual factor involved.

In addition to the above groups there are cases where, regardless of the charge, the alleged act is obviously silly and childish, being the result of a mental disorder or of gross mental defect.

By way of summary, it is the writer's opinion that, without any major change in the existing criminal law in Canada, hospital examination of adult offenders as described in this paper provides for a more extensive use of psychiatric evidence and treatment in criminal cases than is possible under the M'Naghten rules.

TABLE 1

SUMMARY OF FORENSIC CASES, TORONTO  
PSYCHIATRIC HOSPITAL

January 1, 1950 to December 31, 1950

	Male	Fe- male	Total
Total number of patients admitted			
Jan. 1, 1950, to Dec. 31, 1950....	44	19	63
Total number of patients in residence			
Dec. 31, 1950.....	4	3	7
Total number of patients discharged * Jan. 1, 1950, to Dec.			
31, 1950.....	40	16	56

TABLE 1—Continued

Charges	Male	Fe- male	Total
Mentally ill.....	14	5	19
Assault .....	8	1	9
Contributing to juvenile delinquency .....	8	..	8
Theft .....	5	1	6
Vagrancy .....	3	3	6
Incorrigible .....	..	5	5
Threatening .....	2	1	3
Attempted suicide.....	1	1	2
Indecent exposure.....	1	..	1
Unmanageable .....	..	1	1
Wilful damage to property.....	..	1	1
Shooting with intent to kill.....	1	..	1
Drunkenness .....	1	..	1
	44	19	63
Disposal			
Certified .....	18	7	25
Home .....	4	2	6
Court			
Dismissed .....	3	2	5
Suspended sentence.....	1	..	1
Suspended sentence with probation .....	7	4	11
Adjourned <i>sine die</i> .....	1	1	2
\$50 or 30 days.....	1	..	1
Three months.....	1	..	1
Three months +6 months.....	1	..	1
Four months.....	1	..	1
Six months.....	2	..	2
	40	16	56

\* Average length of stay—5.14 weeks.

## CORRESPONDENCE

### GROUP THERAPY WITH NEGRO MOTHERS

*Editor, AMERICAN JOURNAL OF PSYCHIATRY:*

SIR: I have read with interest *Group Therapy for Parents of Behavior Problem Children in Public Schools—Failure of the Method in a Negro School*, by Kahn, Buckmueller, and Gildea, in the November, 1951, issue of the AMERICAN JOURNAL OF PSYCHIATRY. My interest stems from my experience over a number of years as a white psychiatrist treating, in a number of settings, many Negro children and having consultative contact with their parents. My personal experience has been quite contrary to the article's conclusion that Negro mothers do not face responsibility for their children.

In the article, issues of discrimination are referred to as contaminating the parents' consideration of their children's behavior problems. The description of the school studied shows it to have failed to live up to its educational responsibilities. The building is deteriorated, the classrooms house an average of 45 students, indoor recreation is

nonexistent, outdoor recreation inadequate. Because of inadequate facilities, classroom discipline is strict, corporal punishment frequent. A treatment procedure that seeks to place the total responsibility for the presence of behavior disturbances on parent-child relationship can only be met, under such circumstances, by suspicion and resentment. That passive sabotage was the form of resistance used is generally true where an expression of open hostility may have unpleasant consequences.

My own conclusion, from the data reported in the article, is that any system of segregation and discrimination in a school system is bound to have injurious effects both psychologically and educationally. My own experience in working in various nonsegregated setups has been that Negro mothers show the same range of cooperativeness and responsibility as do white mothers.

STELLA CHESSE, M.D.,

Northside Center for Child Development,  
New York City.

### REPLY TO THE FOREGOING

*Editor, AMERICAN JOURNAL OF PSYCHIATRY:*

SIR: Thank you for sending me the thoughtful comments of Dr. Chess on her observations in work with Negro children and mothers in New York City.

She underscores our findings that the multiple deprivations in a segregated area result in emotional problems that caused the failure of our group therapy program in this setting. We concluded that the Negro parents were unable to accept any responsibility for their

children's behavior because they were unable to disassociate their natural resentment against segregation, and their rivalries between each other, from the emotional elements in the parent-child relationship.

We are finding them approachable by modified methods, and Dr. Chess's letter emphasizes the possibility of further successful work along these lines.

MARGARET C.-L. GILDEA, M.D.,

St. Louis, Mo.



## COMMENT

### THE SPECTRAL EPIDEMIC OF SEX OFFENSES

It appears that American males have been cautiously violating sexual mores at a fairly constant rate during the past half century.<sup>1</sup> During this same period, expressed public opinion has gyrated oddly. *Sex talk* has slithered from the intimacy of the boudoir and pool hall to the urbane sophistication of living room and public lecture. Recently sex has stalked lecherously into kilocycle and headline sensation. Our society is presumably engulfed in criminal sex lust. How can we stem this stygian tide?

An examination of the nature and cause of the presumed epidemic is in order. In a problem involving conflicts between strong biological drives and contradictory ethical ideals, the possibility of emotional distortion is great. Perhaps some data about the sex epidemic is in order. Discrepancies in some published statements issuing from the F.B.I. may focus our investigation. On the one hand, a popular article indignantly proclaims:<sup>2</sup> "The most rapidly increasing type of crime is that perpetrated by degenerate sex offenders. Latest figures show that while the number of crimes is diminishing, the number of sex crimes continue to increase." On the other hand, F.B.I. statistics for this so-called period of "rapid increase" show that the general crime rate increment was 4.5% while rape moved up only 1.2% from 1948 to 1949.<sup>3</sup> If we extend the period of time to 4 years to describe the relative increase of general crime versus sex crime, the evidence still holds that there is no relatively greater increase in sex versus other crimes. The increase from 1946 to 1950 in all crimes was 8.1%, in the total sex crime 8.0%, in rape 8.9%.<sup>3</sup> No appreciable difference appears. Perhaps these statistics reflect the true picture most adequately. Sex crime is

relatively *not* increasing according to F.B.I. data. When the left and right hands of a respected investigator lose track of each other the supposition can be raised that emotional conflict, rather than cool thinking, is determining behavior. Criminal statistics consistently show *no marked increase in sex crimes*. If this be true, then why all the excitement?

It is apparent that *public indignation* about sex crime has precipitously increased. The number of popular magazine articles about sex problems increased from a total of 16 in 1946 to a total of 46 in 1950. There is an intense growing concern about sex offenses. Some public-spirited groups have proposed radical surgery (castration) to cure the sex epidemic. Whether treatment is indicated before the presence of the disorder is established is, of course, debatable. There is certainly an emotional reaction of epidemic proportions. But is something besides an increase in sex offenses the cause of the emotional storm?

Controversial though the Kinsey Report may be, it uncomfortably epitomizes a cultural and personal dilemma in American sexual mores. This study suggests that most of the U.S. males have at some time engaged in legally punishable sex behavior. While most of these crimes are exhibitionism, voyeurism, etc., other more flagrant sex violations are common. For example, approximately one-third of American males sampled report having engaged in homosexual activities. Reported sexual aberrations are, according to our Puritan mores, uncomfortably and unbelievably common. Kinsey's data also indicate that this condition is not a recent development.

The sudden revelation that most people are behaving differently from the way they profess to behave is an occasion for widespread anxiety. Some people are using this information to justify more casual and open expressions of interests and activities they used to hide. Others vehemently deny that they are guilty and point the finger of right-

<sup>1</sup> Kinsey, A., et al. *Sexual Behavior in the Human Male*. Philadelphia, Saunders, 1948.

<sup>2</sup> Hoover, J. E. *How Safe is Your Daughter?* American Magazine, p. 32, July, 1947.

<sup>3</sup> Uniform Crime Report for the United States and its Possessions 1946, '49, '50. Federal Bureau of Investigation, Washington, D. C.

eous anger at "more sinful" people: "He is the offender, castrate him!" The upsurge of interest in controlling the "sex offender" then can be understood partly as a scape-goating reaction—a whitewashing job.

Emerson's remark: "What is sin in others is experiment in us," serves as satisfactory justification to most persons, if their "experiments" can be concealed. Criminal statistics compared with Kinsey's report suggest that violation of sex mores and sex legislation is remarkably well concealed. The minimal increase in arrests for sexual offenses during a wave of public concern is somewhat surprising. There appear to be infinitely more sex deviations than arrested sex offenders.

This brings us to the question "Who are the sex criminals?" The answer to this question is readily: those *impulsive, imprudent, and irresponsible people who get caught*. If "... there is no epidemic of sex crimes sweeping across the country,"<sup>4</sup> as a recent legislative report indicates, why is an alarmed and indignant citizenry marshalling against this quixotic enemy?

An analysis by the present writer of the number of popular articles about sex conduct, B.K. and A.K. (before and after Kinsey), suggests an aspect of the problem. A count was made of the number of articles about sex behavior published in popular magazines for the years 1946-47 versus 1949-50.<sup>5</sup> Since Kinsey's Report was published in 1948 this transitional year was excluded. These articles were classified as to whether they were (a) attacking sexual aberration, (b) defending present conduct, or (c) undifferentiated as to attack or defense.

	1946	1947	1949	1950
Attack .....	1	3	6	18
Defense .....	1	0	2	0
Unclassified ....	13	18	22	28
Total .....	15	21	30	46

<sup>4</sup> Report of Brown Committee, California State Legislature (quoted in Guttman, *Sex Offenses*).

<sup>5</sup> Readers' Guide to Periodical Literature, 1946, '47, '49, '50.

The table indicates a threefold increase in the number of articles over the 5-year period with a relatively greater increase in the obviously vigilante articles. Kinsey's report evidently aroused considerable popular concern about sex. His findings dramatize the wide discrepancy between public mores and private conduct. Such a revelation was bound to provoke anxiety. That it did so is partly indicated by the sharp increase in popular articles attacking contemporary sex behavior.

The increase in public concern following the Kinsey Report suggests that the wave of sex crimes is mostly an apparition produced by a wave of public distress and offended dignity.

Guttman<sup>6</sup> succinctly describes the emotional problem aroused by amorality. "Since the unconscious tendencies toward sexual deviations are so general [sex deviations] call for a punitive public reaction which is entirely disproportionate to their social malignancy."

The swelling wave of public indignation against sex crimes cannot be attributed to an increase in such crimes. It can be seen as a protest against the revelation that cultural mores and private behavior are dramatically opposed. The rush to cast the first stone may be not a defense against the offender, but a reaction-formation against the anxiety and guilt provoked by exposure of a basic cultural dilemma. This may give rise to impulsive public action and legislation against the sex-crime spectre. The consequent frantic "witch hunt" that this will provoke should be a matter of serious concern.

Certainly there is critical need for realistic integration of sex mores and sex conduct. There is a continued goal for investigation and treatment of socially dangerous sex aberrations. Impulsive social legislation will only abort further investigation of this cultural dilemma.

F. G. E.

<sup>6</sup> Guttman, M. *Sex Offenses*. New York, Norton, 1951.

## PROGRESS OF HOSPITAL INSPECTION

It will be recalled that the actual work of inspection of mental hospitals in the United States and Canada by the Central Inspection

Board of The American Psychiatric Association was initiated by Chief Inspector Chambers in 1948.

The project of inspecting and rating the state and provincial institutions of North America had been a concern of the Association for many years, but its launching had been delayed, among other reasons, for lack of funds. When the Psychiatric Foundation came into being in 1946 it made the undertaking of hospital inspection its first objective and allotted funds for the purpose. The policy was to offer this service free to states and provinces requesting it. When, after a year's preliminary study, the announcement was made that the Board was ready to begin inspections there was no lack of response. Many states and several Canadian provinces promptly made application; but with the small field staff available it was obvious the work would have to proceed slowly. To Maryland goes the credit of being the first state to be visited for the inspection and rating of its four psychiatric institutions.

In 1950 the Psychiatric Foundation ceased to exist, being merged with the National Committee for Mental Hygiene and the National Mental Health Foundation to form the National Association for Mental Health.

This radical reorganization meant new planning and new financing for the work of the Central Inspection Board. Its activities were necessarily interrupted for a time pending settlement of these matters. The National Association for Mental Health, although offering assistance, did not take over the full responsibility initially assumed by the Psychiatric Foundation for the costs of

hospital inspection. It was necessary, therefore, to bring the altered situation to the attention of the several states and provinces and to formulate new agreements whereby the expenses of inspection would be shared. This was done during the past year, hospitals being asked to bear 80% of inspection costs.

On this basis work has been resumed and is actively proceeding. Upon request Chief Inspector Chambers kindly furnished the following statement as of year-end 1951:

"The Central Inspection Board has completed initial inspections in the Canadian provinces of Saskatchewan and British Columbia, the states of California, Idaho, Maryland, Kentucky, Connecticut, New Jersey, Virginia, North Carolina, Utah, Vermont, Nebraska, North Dakota, and the Territory of Hawaii.

"The Chief Inspector is now carrying out the inspection of the hospitals of Oklahoma. Georgia is next on the list.

"Considerable progress has been made in developing a method for rating the hospitals and it is planned to push this work to completion as rapidly as possible.

"Hospitals that have been approved by the American College of Surgeons will continue on that basis until inspected by the Central Inspection Board.

"Hospitals inspected by the Central Inspection Board will be approved, approved conditionally, or not approved according to their standing. Each hospital will be furnished with a list of its deficiencies."

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Les idées fausses sont les grandes dévastatrices de l'histoire. Ce n'est pas avec des armes matérielles qu'on les combat. Le canon n'est qu'un serviteur de la pensée. Des idées qui vont diriger les peuples dépendra leur destinée.

GUSTAVE LEBON (1916).

## NEWS AND NOTES

**SOUTHERN PSYCHIATRIC ASSOCIATION ANNUAL MEETING.**—The 1951 annual meeting of the Southern Psychiatric Association was held at the Carolina Hotel in Pinehurst, North Carolina, December 9-11. Fellows of the Association and their guests, numbering 300, attended the meeting. Following the opening ceremonies Dr. R. Burke Suitt delivered the presidential address.

In addition to 18 papers presented by Fellows of the Association, 9 papers were read by guest speakers. Dr. Benjamin Karpman provided a psychoanalytic drama. Dr. Leo H. Bartemeier contributed "The Attitude of the Patient," and Dr. Francis J. Braceland read "The Secretary of the Board," prepared conjointly with Dr. David A. Boyd. The papers by Drs. Eugene A. Stead, James F. Schieve, William P. Wilson, and Peritz Scheinberg constituted a topical symposium; they were entitled "Cerebral Blood Flow and Metabolism," "Cerebral Vessel Reactivity in Cerebral Arteriosclerosis as Measured by the Response to Carbon Dioxide Inhalation," and "The Effects of a Therapeutic Series of Electric Shocks on Cerebral Blood Flow and Cerebral Metabolism." Dr. William Beecher Scoville summarized, under the title of "Results of Cortical Undercutting of Various Areas of the Frontal and Temporal Lobes: Psychiatric and Physiologic Studies of 160 Cases," the work that he has carried out with Drs. E. H. Wilk, A. Pepe, and R. Dunsmore. Dr. Leonard J. Ravitz reported upon "Electrocyclic and Folie à Deux Phenomena in Schizophrenic Dizygotic Twins." Professor Elon H. Clark described and illustrated "Visual Adjuvants in Psychiatry."

New officers are as follows: president-elect, Dr. W. L. Waldron; vice-presidents, Drs. C. C. Odom and John Trawick. Dr. Newdigate M. Owensby continues as secretary-treasurer, and the following were re-elected to the Board of Regents: Drs. Joseph E. Barrett, E. M. Robards, and Wilmot S. Littlejohn.

The incoming president, Dr. O. S. Hauk, addressed the assembly during the concluding session.

During the afternoon of December 9 those attending the meeting were tendered a cocktail party by the officers and members of the North Carolina Neuropsychiatric Association. Preceding the annual dinner on the succeeding evening Dr. R. Charman Carroll assisted the president, Dr. Suitt, in receiving the guests and members of the Association at a cocktail party. Following the dinner, entertainment planned by Drs. George F. Sutherland and John Grier and their committees provided a pleasant set of diversions.

The time and place of the 1952 meeting will be announced later in the year.

**NATIONAL ASSOCIATION FOR MENTAL HEALTH.**—In the first annual report of the National Association for Mental Health special attention is called to an extensive research project on the causes of dementia praecox, the mental illness that accounts for more than 50% of all hospitalized mental patients. The project has been going on for the past 16 years, and currently 17 outstanding scientists are working in as many separate studies under the guidance of the Association's medical director, Dr. George S. Stevenson, and of Dr. William Malamud. The project is financed by the 33<sup>rd</sup> Scottish Rite, which increased its annual grant from \$50,000 to \$70,000 for 1952.

The studies to date, according to the report, "have produced very good evidence that dementia praecox is not merely a psychological deviation but rather that it involves deeply rooted deficiencies in metabolism, endocrine balance and body chemistry."

**DR. DAVIDSON TAKES NEW POST WITH VA.**—Dr. Henry A. Davidson, formerly of New Jersey, who went to Washington, D.C., last year to assume the position of chief of psychiatry for the 9 states in that area, has now been appointed chief of the section on program, planning and analysis of the Psychiatry and Neurology Division of the Veterans Administration, Central Office. Dr. Davidson succeeds Dr. John H. Baird, who

recently retired from active duty with the VA. Dr. Davidson is currently chairman of the committee on Constitution and By-Laws of the American Psychiatric Association.

**NEUROPSYCHIATRIC MEETING, NORTH LITTLE ROCK.**—The Fourth Annual Neuropsychiatric Meeting will be held at the Veterans Administration Hospital, North Little Rock, Ark., on February 28 and 29, 1952. Vice-Admiral Joel T. Boone will be the speaker at the dinner meeting, and the guest lecturers are as follows: Dr. Leo H. Bartemeier, Dr. Daniel Blain, Dr. Paul C. Bucy, Dr. D. Ewen Cameron, Miss Hester B. Crutcher, Dr. E. H. Cushing, Dr. Edwin F. Gildea, Dr. O. Hobart Mowrer, Dr. Philip Thorek, Dr. Harvey J. Tompkins, and Miss Mary Jane Ward. There will be clinical demonstrations and technical exhibits in addition to the scientific sessions.

Attendance of all interested professional personnel will be welcomed and there is no registration fee. For further information write to Dr. Ewin S. Chappell, VA Hospital, North Little Rock, Ark.

**GRANT TO UNIVERSITY OF MINNESOTA FOR RESEARCH.**—Through a recent grant of \$102,000 from the Office of Naval Research five University of Minnesota professors have been enabled to carry on a program of basic research in group and individual behavior over a three-year period. Five separate projects are under way, directed by Dr. Elio D. Monachesi, Dr. W. A. Russell, Dr. Ben Willerman, Dr. Arnold Rose, and Dr. Howard Gilkinson, of the departments of sociology, psychology, and speech, respectively. The five projects will be closely coordinated and they are all concerned with problems in morale and interpersonal relations.

**POSTGRADUATE COURSE AT UNIVERSITY OF UTAH.**—A course designed to meet the needs of general practitioners and internists was given by the University of Utah School of

Medicine, November 29 to December 1, 1951. Titled "The Functional Aspects of Medical Practice," it was presented by members of the faculty in the departments of psychiatry, pediatrics, medicine, pharmacology, obstetrics and gynecology, and surgery. Dr. Stewart Wolf of New York City and Dr. Sidney Rubin of Topeka, Kansas, were guest lecturers.

**ASSOCIATION FOR RESEARCH IN NERVOUS AND MENTAL DISEASES.**—At the thirty-first annual meeting of this Association, held in New York City December 14-15, 1951, the following officers were elected for the year 1952: president, Dr. H. Houston Merritt; first vice-president, Dr. Robert F. Loeb; second vice-president, Dr. Charles D. Aring; secretary-treasurer, Dr. Clarence C. Hare; assistant secretary, Dr. Rollo J. Masselink. Two additional trustees, Dr. H. Houston Merritt and Dr. Clarence C. Hare, were elected to enlarge the Board of Trustees from five to seven.

The subject for the 1952 meeting will be "Metabolic and Toxic Diseases of the Nervous System."

**MASSACHUSETTS PSYCHIATRIC SOCIETY.**—At the annual meeting of this Society held October 26, 1951, the following officers were elected to serve for the year 1951-52: president, Dr. David Rothschild; vice-president, Dr. C. Colket Caner; secretary-treasurer, Dr. Jay L. Hoffman; councillors, Dr. William Malamud and Dr. John T. Shea.

**MID-CONTINENT PSYCHIATRIC ASSOCIATION.**—This Association will meet in Kansas City, Missouri, at the Hotel President on April 26 and 27, 1952. Among the speakers will be Dr. Leo H. Bartemeier, Dr. Francis J. Braceland, and Dr. Dexter M. Bullard. All interested physicians are invited to attend. For further information write to Dr. Paul Hines, secretary-treasurer of the Mid-Continent Psychiatric Association, 2625 West Paseo, Kansas City, Mo.



## BOOK REVIEWS

THE STRUCTURE OF HUMAN ABILITIES. By Philip E. Vernon. (New York: John Wiley and Sons, Inc., 1950. Price: \$2.75.)

This short book is an attempt to bring together in an integrated fashion some 250 research studies on the factorial analysis of abilities. The author, professor of educational psychology in the University of London, is intimately acquainted with this field. Along with Spearman, Thurstone, Burt, and Thomson, he ranks in the forefront of those psychologist-statisticians who have labored in this particularly complex and prolific area of research. It is, therefore, eminently suitable that Vernon write on this subject.

Factor analysis is a means whereby statistical manipulation through correlational technique permits the reduction of masses of data about inter-correlated variables (test scores or ratings) to be interpreted in terms of relatively few "factors," which are then conceived to be fundamental to the operations of human nature that produced them. Thus this method allows study of the attributes of human beings, children and adults alike. The present volume attempts to survey *nonmathematically* the results found with this method of study of human abilities. Abilities are defined as activities or performances dependent upon speed and correctness. Intelligence, educational attainment, psychomotor and physical abilities, and the like are analyzed in separate chapters. Specifically excluded from discussion are personality traits, interest, and other psychodynamic characteristics.

Vernon organizes his material in keeping with one of the two predominant points of view in the field, namely the hierarchical position, which stresses the existence of a general factor of ability called "*g*"; several main types of ability that themselves can be subdivided into more numerous minor group factors; and, finally, factors so specific as to be related to one test alone. These variables are conceived as related in the form of a hierarchy culminating in *g*, the omnipresent general factor. Thurstone and his co-workers are representative of the opposed position. They base their position upon evidence that test intercorrelations can be accounted for by assumption of 7 independent types of ability, or so-called multiple factors. Vernon shows in the course of his development of the material that these 2 points of view are not as incompatible as they often are assumed to be. The results of the various studies by many workers presented in a systematic fashion show that whether stress be placed on the multiple-factor or hierarchical position relatively few factors were needed to account for the range of human abilities. Thus order and system of a kind are to be found.

And yet these findings, admirably organized although they may be, are, at present at least, of little more than passing interest to psychiatrists

or other clinicians. Reasons are not far to seek. Affective aspects are deliberately disregarded in this particular presentation although Vernon is not unaware of their importance. The functioning individual, as an individual, is disregarded as well. Indeed, factors are, according to Vernon, a "blurred average . . . (that) may stem from very diverse mental and physical processes in different people." Since the affective-dynamic aspect is excluded and the intraindividual focus disregarded, these studies so skillfully integrated into a picture of ability functioning have a curiously alien air to the work of the psychiatrist.

This might lead, at first reaction, to dismissal of their findings as irrelevant. But is this not provincial and short-sighted? Factor analysis is an entire area of research including many hundreds of investigations concerning human nature. It is to be hoped that some catalytic agent in the person of someone steeped in both the factor analysis and the psychiatric tradition will be able to make vital and professionally intelligible this presumably potentially valuable source of information.

In the meantime, this book may be recommended as a clear and nonmathematical introduction to the findings of the factor analyst concerning human abilities.

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PSYCHIATRIC ASPECTS OF JUVENILE DELINQUENCY.

By Lucien Bovet, M.D. (Geneva: W.H.O., 1951. Price: \$1.00. Distributors: Ryerson Press, Toronto, Canada, and Columbia University Press, U.S.A.)

This monograph, prepared on behalf of the World Health Organization, is a contribution to the United Nations programme for the prevention of crime and treatment of offenders. The work may be considered an invaluable source of reference for all engaged in attempting to understand and cope with the problem of juvenile offenders. It is written with maximum clarity and utilizes a vocabulary that would present no major problem to either the intelligent lay reader or to any of the allied professional groups interested in the multi-discipline approach to the juvenile delinquent.

Dr. Bovet has fulfilled the task assigned to him of reviewing the most widely accepted opinions regarding the etiology, the prevention, and treatment of juvenile delinquents. He also draws to the attention of the reader, in a concise fashion, the works of those individuals and institutions that should be known to those engaged in this aspect of criminology. He has assessed the various theoretical aspects concerning etiology, prevention, and treatment in a most impartial manner, continually

attempting to define the role of psychiatry in the multi-discipline approach to mental hygiene in this particular area. The excellent summary and bibliography that he provides makes the monograph an excellent source of reference. In the reviewer's opinion it may be considered a major contribution to the literature concerning juvenile delinquency.

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EL PSICODIAGNÓSTICO MIKINÉTICO: SU TEORÍA Y PRÁCTICA. By César G. Coronel. (Buenos Aires; El Ateneo, 1950.)

EL PSICODIAGNÓSTICO MIKINÉTICO DE MIRA. By José Angel Bustamante. (La Habana; Impresora Modelo, 1949.)

Since 1939 when Mira first described his test in the Proceedings of the Royal Society of Medicine of London, several authors, especially from South American countries, have demonstrated its usefulness in the practice of psychiatric clinical work. In the present 2 volumes Coronel and Bustamante make a presentation of the theoretical principles on which this test is based; they describe the technique in minute details and present the results of their extensive personal experience.

Mira's Myokinetic Psychodiagnostic Test is based on the principle that motor performance is closely correlated to both the subject's mental state and to his characterological traits. It also takes into consideration the ideas of Werner Wolf, who believes that the dominant limb, being subject to a process of constant training, is correlated with consciousness and inhibition. The nondominant limb, on the other hand, is left untrained and consequently is more correlated with the unconscious and the individual constitutional endowments. In the test, the individual is asked to perform a series of drawings first openly and then blindly with both hands. The figures include lines, zig-zags, chains, etc., and have to be drawn on 3 planes. Arm, wrist, and hand are unsupported to have a free myokinetic performance. Mira's first findings showed correlations between the type of tracing and various clinical entities.

Bustamante and Coronel have been working on the test for a considerable time after being both personally instructed by Mira. They have gathered extensive material that enables them to speak with authority about the test. In Coronel's book too much space is devoted to establish the theoretical foundations of the test and the presentation is not always clear. Bustamante's concise and short discussion is more appropriate for the practitioner who wants to be acquainted with this method. Both show the usefulness of the test from a diagnostic point of view. But the real value of this technique as compared with other projective tests seems to lie in the possibilities offered in prognostic appraisal. Coronel gives a complete bibliography for the test. It includes 17 publications by Mira and 55 by other authors.

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OUR REJECTED CHILDREN. By Albert Deutsch. (Boston: Little, Brown and Company, 1950. Price: \$3.00.)

In this book, Albert Deutsch has surveyed the juvenile delinquency problem in this country. He visited institutions for delinquent children in many states from coast to coast. This book is arranged in two parts: the first part "describes the conditions of child delinquents in some public and private institutions; the second part traces the community backgrounds of these children, and considers the available facts and theories on the causes, cures and prevention of juvenile delinquency."

In describing the conditions he found in public institutions he emphasizes (1) the lack of trained personnel, (2) regimentation of the children with no regard for individual problems, (3) the lack of psychiatrists, social workers, psychologists on the staff of the public institutions, which result in the child being poorly understood, (4) inadequate living quarters, overcrowding, poor equipment in work shops and schoolroom, and (5) financial appropriations from the state inadequate for organizing and maintaining an efficient, beneficial program for these emotionally disturbed children. After describing the conditions he found in the institutions, the author outlines a "Program for Improvement," offering a dozen recommendations all of which are noteworthy and most constructive.

In the second part of the book, factors contributing to the cause of juvenile delinquency are discussed. Some of these factors are as follows: slum districts; broken homes; inadequate, emotionally disturbed parents; overlooking of symptoms of emotional disturbances in the very young child who is left untreated and becomes increasingly disturbed as time goes on, until he or she commits some deed punishable by law and then is sent to a training school where no attempt is made to understand the problem.

One chapter is devoted to the "Battle over the Comic Books," and the author points out that to blame this form of literature for the outburst of crime among children is merely to find "a scapegoat in the never-ending search for a one-cause, one-cure solution to juvenile delinquency." He rather prefers the explanation "based upon research that emotionally healthy children are unharmed by them [comic books], but that they may aggravate the already morbid feelings of emotionally disturbed, insecure children."

A study was made of judges in juvenile courts and many were found to be unsympathetic and with little understanding of children and their problems; of jails and detention homes where children are held until their case is considered. These jails and detention homes are overcrowded, filthy, and often children are confined with adults who are alcoholics, sex perverts, and murderers. The author points out also that the community itself rejects these children by not providing agencies that could make constructive plans and put them into effect for rehabilitation of maladjusted children. Taking all these things into consideration Mr. Deutsch points out that we still have not uncovered the real forces operating to give the United States a higher rate of juvenile

delinquency than any other country. He devotes a chapter to "Our Crime-Breeding Culture" and states that "a major pervasive factor in America's juvenile delinquency picture is the impact of the culture itself." Crime is a popular theme in the press, the theatre, the films, the radio. Often the criminal is depicted as an appealing, attractive individual who dies as a martyr. There are many criminal "syndicates" in operation, controlling illicit gambling rackets; there is illegal giving and taking of graft and bribes; dishonesty in professions; cheating of the government, and many others so that "the child grows up in a double-faced world, with respect to attitudes toward lawbreaking." In conclusion he points out that "we must think in terms of a better society, of replacing crime-breeding slums . . . of abolishing that social disease we call poverty; of creating more meaningful social values and moral goals than the shoddy ones that possess so many of us . . . of eliminating the racial and religious discriminations that produce antisocial tensions and resentment; of building community interests in terms of the society of the child as well as the society of the adult."

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ALCOHOL AND SOCIAL RESPONSIBILITY—A NEW EDUCATIONAL APPROACH. By *Raymond G. McCarthy and Edgar M. Douglass*. (New York: Thomas Y. Crowell Company and Yale Plan Clinic, 1949. Price: \$3.50.)

The book is written, according to the authors, "in response to thousands of requests addressed to Yale Plan on alcoholism for an objective treatment on the problem of alcohol based on scientific facts." This book, therefore, is intended for popular reading and endeavors to give the average man some idea of the problem of alcohol and ways of dealing with it.

The book is divided into two parts: Part I, Basic Principles and Facts, and Part II, An Approach Through Education. Part I starts out with a historical discussion and includes cultural attitudes, an account of ways in which society has attempted to solve the problem, and physiological and psychological factors. In general, this material is correctly and adequately presented for the persons for whom it is intended.

There is much interesting historical material presented. For example, in Chapter 3, "Social Control of Intemperance: Political Action," it is noted that "Between 1851 and 1855 state prohibition of the manufacture, distribution and sale of alcoholic beverages became effective in all the New England states and in Minnesota, Michigan, Indiana, Delaware, Iowa, Nebraska and New York. This represented more than a third of the thirty-one states in the union. These early experiments with state prohibition were short-lived. By 1863 eight of the thirteen had repealed the legislation and four others had modified the law significantly. Only in Maine was the original legislation maintained."

" . . . Beginning in 1880 there was a second wave of activity for legislative control of the sale and distribution of alcoholic beverages. Eight states passed prohibitory laws. Again the experiment was short-lived. Most of these states had repealed the legislation by 1904. During the decade preceding the first World War a third wave of prohibitory legislative action developed, this time showing its greatest strength in the South and West. When the United States entered the war in 1917, twenty-five states had some kind of prohibition laws."

It is also interesting to note that in 1947 the users of alcoholic beverages in this country spent \$9,640,000,000, whereas, in 1948, the last year available at the time of going to press, the total expenditure was only \$8,800,000,000. There are further, some interesting figures as to the relative consumption of distilled liquor, wine, and beer. In terms of wine gallons the consumption of distilled spirits has decreased over 50% since 1850, wine has increased over 100%, and beer has increased almost 1,000%.

The approach to the problem is primarily sociological and the question of alcoholic psychosis is dealt with in less than one-half a page.

Part II, An Approach Through Education, starts out with the claim that it is the responsibility of educators to give correct information on this whole problem. There follows an excellent discussion of a way in which the subject should be taught in our school system.

Considerable space is devoted to discussing the present films that have appeared on this subject and in pointing out a number of the serious defects in such films. There is a good chapter on "Mental Hygiene and Problems of Alcohol."

The book can be recommended for general reading. The whole approach to the problem is well balanced and factual. It can be said to summarize the best thinking we have at present on this problem.

K. M. B.

THE PSYCHOANALYSIS OF ELATION. By *Bertram D. Lewin*. (New York: W. W. Norton and Co., 1950. Price: \$3.00.)

A new book by one of our leading psychoanalytical clinicians, and dealing with a topic so rarely discussed and so little known, makes one look forward with keen anticipation. Indeed one is not disappointed. In a limited space of 180 pages, in language characterized by perfect clarity of thought and lucidity of presentation Lewin succeeds in giving a masterly synthesis of the problem, based on full knowledge of the literature and his own wide experience.

In best analytical tradition he combines keenness of observation with imagination. The former, partly known from his earlier publications, deals with such fascinating clinical problems as hypomania, the oral triad, and the dream screen. These observations bear enough interest to attract the reader who would not be prepared to go along with the speculative part of Lewin's monograph. However, for a psychoanalytically oriented psychiatrist the

theoretical part is even more fascinating, since it offers illuminating flashes of insight that establish unexpected connections between phenomena seemingly completely divergent.

Lewin's theory is based first on the conception of denial as the core of elation and a characteristic function of the pleasure ego. Its predominant role is observed in dreams, in fantasies, and in elation. His second idea is the comparison between mania and sleep. Mania repeats falling asleep in that it represents the fusion of the ego with the superego. Yet this fusion does not reach the regression of the dreamless sleep of the infant. Rather it reproduces the later sleep of a somewhat older child with denials, identifications, and happy wish fulfillments. In the state of ecstasy that may precede elation the reproduction of the original fusion between the infant and the breast is complete and here as well accompanied by the feeling of bliss. The eve of mania may be marked by an oneiroid condition, which then functions as an equivalent of hypnagogic phenomena. In the actual manic attack the wish to stay awake takes the upper hand over the wish to sleep.

Finally the third point of Lewin's conception is the oral triad, which is meant to comprise the wish to eat, and its reversal the wish to be devoured; the third component is the wish to sleep. Out of these wishes, the manic ego satisfies on varying levels the first one but in many ways, by its fantasies, affects, and activities, it denies and avoids the 2 others. This becomes more clear when we realize that both remaining wishes of the oral triad are in the unconscious so often equated with the wish to die. In parallel to the dream, which is a protector of sleep, in mania, which is a defense against the wish to sleep, there reappear some of the qualities of sleep, such as visions, oneiroid states, and some of the elements of the dream work.

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DE L'INSTINCT À L'ESPRIT. By *Charles Baudoin*. (Bruges, Belgium: Desclée de Brouwer & Company, 1950.)

In this important précis of analytic psychology the author pursues, as in two of his previous books, the search of unity in psychoanalytic science among the discordant schools, which are nonetheless greatly influenced or inspired by Freud's original and powerful thinking.

By isolating in an abstract way the fundamental teachings of psychoanalysis, he shows that Freud's principles, brought back to their very essence and freed from prejudiced emotional controversies, form a kind of common denominator or the foundation of a structure in which the schisms, or rather the contributions of such dissidents as Adler, Jung, Rank, Stekel, etc., find their proper place. The personal contributions of the author himself belong also to this common structure of a science that it would be vain to consider as anything other than a collective achievement.

Within the limits of this short review, we can only mention some of the highlights of this engrossing and enlightening book in which the breadth of thought is equaled by the most serene scientific objectivity.

In the first part of this book, "From Action to the Dream," let us point out an authoritative chapter on the dream, where the author reviews the various studies on this subject, each of which enlarges one way or another the strictly Freudian theory. Let us also mention outstanding reflections on "the image in action"; on the method of "acted dream" of Baudoin and on the amazing activity of the symbol in action, the therapeutic efficacy of which has been demonstrated by the method of the symbolic realization of Sechehaye (cure of a case of confirmed schizophrenia).

In the second part, "From Instinct to Intelligence," the author establishes a valuable distinction between the analytic transference and the analytic relationship. He situates the genetic psychology in relation to the psychology of complexes, which introduces a third dimension, and which is the keystone of psychoanalysis. He warns against tempting simplifications offered by techniques and tests that can only be a method of approach, psychological reality not being completely reachable by the objective intellect. Here takes its place the last advice of Freud, "to grasp by intuition the personal unity of the patient," the language of the human personality not being that of the number.

The last part, "From Conflict to Agreement," is a confrontation of the disciplines of Freud and Jung, in order to define the conditions of their collaboration.

The conclusion, with its philosophical perspectives, brings out the misunderstanding according to which psychoanalysis would be an explanation of the superior by the inferior, a reduction of man to the animalistic element of its nature. It is here a question of relationship and not of identity. Synthesis is more than a sum. This consideration, too often overlooked, cannot be altered by mechanistic science founded on the research of material causes. Material cause and formal cause do not exclude each other. "They must be considered as an overdetermination. The value belongs to the register of form that is of the person, and man is a valuating animal," Baudoin concludes.

This book, written in French, is a very provoking one, rich in knowledge, in which the author shows a faithful yet free Freudianism that does not neglect, on its way, to learn from the dissidents. Indeed doctrinal obstinateness is not only a mistake but a danger. It would be desirable for this book to find an English reading public.

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COUNSELING THE HANDICAPPED IN THE REHABILITATION PROGRAM. By *Kenneth W. Hamilton*. (New York: The Ronald Press Company, 1950. Price: \$3.50.)

This book, written by a sociologist and intended particularly for employment counselors, the author

states in his preface should be useful also to social workers, physicians, psychologists, and other therapists. The reviewer agrees wholeheartedly.

A great number of factors as outlined in the basic concepts are carefully considered: the problem of handicap and disability, of employability, the consideration of physical as well as mental capacities, indicating the adequacy of the educational level and of the personality, and the social factors in the vocational adjustment. The coordination between work counselor and physician will be of great value and this book closes a gap, giving the employment counselors some knowledge about the physical and psychological handicaps and the physicians an idea about the possibilities and limitations of rehabilitation, facilitating the setting up of adequate and realistic goals in this field.

The chapter on "Developing the Assets of the Individual" and the stressing of cautiousness in the use of psychometric evidence in the personality inventory appealed particularly to the reviewer. It cannot be repeated too often that "tests indicate scores only," and that they are only *one* item to be properly interpreted for the evaluation of the individual.

It will please the psychologically oriented physician that emphasis is laid on such concepts as "Not the defect but the person and his needs should be considered," that objectives rather than services should guide the philosophy of rehabilitation, and that the understanding of the person should be more important even than the type of disability in order to evaluate the handicap and the possibilities of employability. The various factors are enumerated as physical capacity, mental and educational level, psychological factors in employment, aptitudes, interests, abilities and skills, social acceptance, and availability of employment.

Some repetitions that perhaps seem necessary for the sake of emphasis are regretted as, for example, the frequently recurring statement that medical rehabilitation or physical restoration are not identical with rehabilitation and that specialized counselors and the pooling of resources are of primary importance. Another point in the discussion touches on a controversial topic: when does counseling end and when does psychotherapy by the physician begin? The author states that, where it is found that the disability is "needed" for neurotic reasons or where deeper psychological disturbances are found, a psychiatrist's help should be asked. However, other statements show the problem more clearly as, for example: "Psychotherapy is inherent in all counseling, of course," or "New insight on the part of some members of the staff may give the counselor the needed clue for psychotherapy."

The chapter on the community organization in the rehabilitation process, the problem of the severely handicapped, the rehabilitation center, and, finally, the "disabled worker on the job" will give the physician interested in rehabilitation valuable information and reference material, which he can enlarge by using the 8 pages of bibliography. Every

psychiatrist who deals with the rehabilitation problem will benefit by use of this book.

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LA PSYCHOLOGIE DES TUBERCULEUX. By Dr. Maurice Porot. (Neuchâtel, Switzerland: Delachaux & Niestlé, 1950.)

In this well-written volume the author attempts to elucidate the relationship between the somatic and psychic aspects of tuberculosis. He illustrates his thesis with brief case histories and by communications from his colleagues, personal observations, and an excellent bibliography (listing over 700 references). The work is carefully organized into 2 main sections; the first, considering the influence of the psyche on tuberculosis, and a second, much more extensive part, dealing with the effects that tuberculosis produces on the psyche.

One of the outstanding positive features of the book lies in the sympathetic handling of the vicissitudes of the emotional life of the tuberculous patient after the disease process has begun. The warmth of style, unusual in a technical monograph, makes for enjoyable reading.

However, in a number of instances, literary merit displaces scientific caution. Thus, in discussing the intellectual and affective disturbances occurring in tuberculosis victims after hospitalization, the writings of Koestler, Mann, and Martin-Chauffier, rather than the patients' own words, are drawn upon to describe their feelings. Certainly, the penetrating insights of these authors are desirable, but not in lieu of direct quotations from the patients themselves.

A more notable lack is the writer's failure to demonstrate the specificity of the tuberculous process in terms of the predisposing emotional factors. For example, in the section on the unconscious psychic elements related to the onset of the disease, he elaborates on the flight into illness and the self-punitive and self-destructive needs of the individual. But, although he clearly shows how these needs can result in sickness, the question as to why tuberculosis *per se* should develop is unanswered. However, this is a problem that yet remains to be adequately solved in regard to any of the psychosomatic diseases known today.

Unlike some current psychiatric works published in French this one is enlightened in its use of psychoanalytic concepts. Unfortunately, the criticism that the author anticipates is correct, that is, that these concepts are "timidly and insufficiently advanced." That they should be utilized at all is encouraging.

In general, the book is commendable. While no profound formulations illuminate the deeper relations between mind and body of the tuberculous person the text is highly informative and readable.

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**PIONEER DOCTOR.** By *Lewis J. Moorman, M.D.*  
(Norman, Okla.: University of Oklahoma  
Press, 1951. Price: \$3.75.)

For some years, there has been a succession of books dealing with the practice of medicine in early days, but this is different. Although it is intended for laymen, there are many pages of the history of medicine that are interesting to physicians. The chapters dealing with tuberculosis in all its many phases are from the pen of a man who has spent more than half a century in close contact with the disease. The book is well written, and one of the best of its kind.

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**THE NEUROSES.** By *Walter C. Alvarez, M.D.*  
(Philadelphia and London: W. B. Saunders  
Co., 1951. Price: \$10.00.)

This book is based on the simple proposition that the vast majority of cases that, narrowly speaking, may be called psychiatric are seen in the everyday practice of the general physician; that he should be able to recognize them and to treat a very considerable number of them; that he should know which ones to refer to a psychiatrist, and then—of special importance—how to choose a psychiatrist; for Alvarez finds that there are "good" psychiatrists—and others, just as there are good and less good practitioners in other departments of medicine or in other professions. "Several of my patients," the author remarks, "have had to consult four or five psychiatrists before they found one who helped at all."

For many years internist at the Mayo Clinic, to which some 1,400,000 patients come every year, many of them presenting psychological problems, Alvarez' psychiatric experience has been exceptional and he turns it to account in this book, the product of two and a half years' writing. Realizing that the general physician is not a specialist in psychiatry he "came to see that the ideal book on neuroses for a non-psychiatrist would have to be written by a fellow non-psychiatrist: a man who for long had dealt with the everyday problems of all physicians, and especially with the problems of diagnosis. He would know better than anyone else what these problems are, and he would be most likely to write about them in simple speech."

This the author has done, and to make his work comprehensive he has not only drawn upon his own rich experience of nearly half a century and from that of his fellow-specialists at the Mayo Clinic but he has also incorporated in his book some of the most useful information from the specialist literature.

One may quarrel with the author's style, which is easy-going and repetitious in places. At the same time his conversational manner of presenting his material makes for easy reading, although the busy practitioner might find a more closely knit text of greater advantage.

The several parts into which the text is divided will indicate its scope. The Introduction points to the side of medical practice that needs to be improved, that dealing with the mental state of patients, and discusses classifications and definitions. The author rejects the term "psychoneurosis" but retains "neurosis" and "psychosis."

The section on Diagnosis suggests how to get the significant factors in the medical history, to distinguish organic from nonorganic conditions and relevant from irrelevant findings.

Under Etiology the author considers poor family stock, physiological features, and notices particularly iatrogenic symptoms. An ample chapter is devoted to marital difficulties and deserves careful reading. It answers many questions pertaining to a subject insufficiently considered in general practice.

Part IV takes up personality types and the commoner neurotic, schizoid, cycloid, and psychopathic reactions; also homosexuality and epilepsy. A separate chapter deals with the various types of headaches.

In Part V psychosomatic features of the several specialties are discussed in considerable detail (150 pages), including psychosomatic problems of the child.

The final section contains the chapters on treatment. Here will be found a wealth of advice and specific directions that could come only from vast experience and great skill in handling nervous patients. The little things that are so easily neglected and that may mean so much are illustrated by examples. The physician is told what he should say or do and what he should not say or do. Sound psychotherapy is exemplified.

Alvarez' book is a useful textbook of psychiatry for both the general physician and the medical specialist; the medical student could hardly be referred to a better guide; even the psychiatrist might take no harm from reading it. The book contains much good advice on the doctor-patient relationship, the fine details of the medical art, and the everyday business of wholesome living that will scarcely be found elsewhere.

An appendix gives a list of mental hygiene societies and a directory of state mental health authorities to whom recourse may be had in case of need. There is also a section on commitment procedures.

C. B. F.

## IN MEMORIAM

VERNON C. BRANHAM, M.D.

1889-1951

Dr. Vernon C. Branham died suddenly in Washington, D. C., on October 23, 1951.

Born in Denver, Colorado, May 26, 1889, he attended public school and college in his native city, receiving the degrees of B.A. in 1913 and M.D. in 1919 from the University of Colorado. In the interval between college and medical school he received the degrees of M.S. (University of Denver 1914) and M.A. (Columbia 1915). His internship was served at Saint Elizabeths Hospital in Washington, where he was strongly influenced by Dr. William Alanson White.

Going to New York after his internship, Dr. Branham served for a time on the staff of the Psychiatric Institute and Cornell Psychiatric Clinic until 1924, when he became assistant superintendent of the Institute for Defective Delinquents at Napanoch, New York. For nearly a quarter century from then on his work dealt largely with delinquents. For 5 years (1930-35), for example, he was Deputy Commissioner of Correction for New York State in charge of psychiatric

services in the prisons, and superintendent of the Woodbourne Institute for Defective Delinquents from 1935-47. In the latter year he retired from the state service and joined the staff of the Veterans Administration in charge of the outpatient section of the Psychiatry Division of the Central Office, serving there until his death.

Dr. Branham was the founder of the American Psychiatric Association Section on Forensic Psychiatry in 1933, a section that has thrived ever since, although at the time of its birth this phase of psychiatry was far less well developed than now. He was likewise the founder and for many years the editor of the *Journal of Criminal Psychopathology* (now the *Journal of Clinical Psychopathology*). In 1949 he edited, with Samuel Kutash, the *Encyclopaedia of Criminology*. Friendly, kind, progressive, and active, he was an important contributor to psychiatric progress, and a warm friend who will be missed by the large circle of those who came into contact with him.

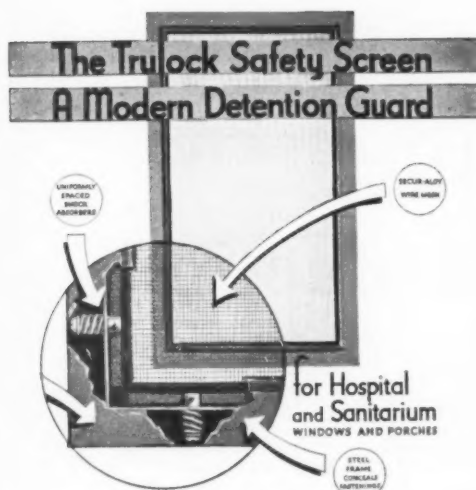
WINFRED OVERHOLSER, M.D.



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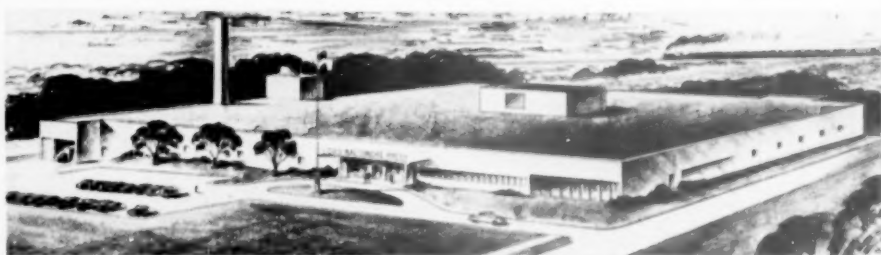
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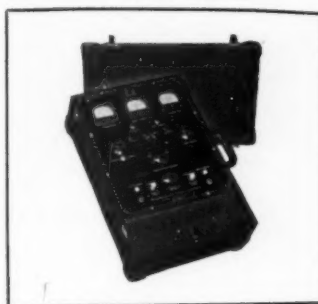


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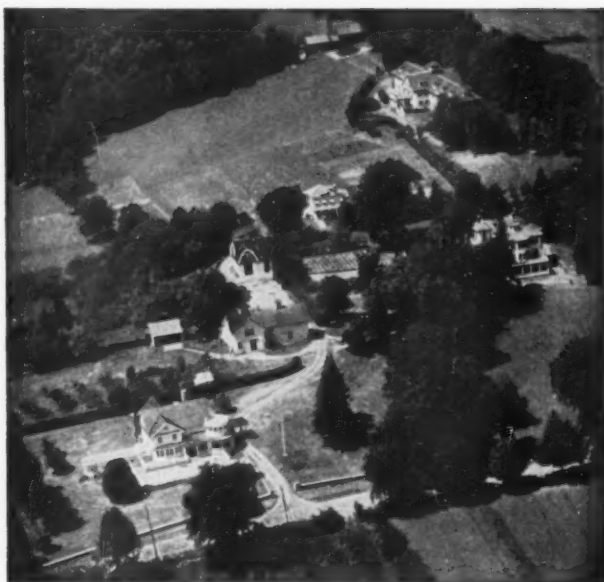
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